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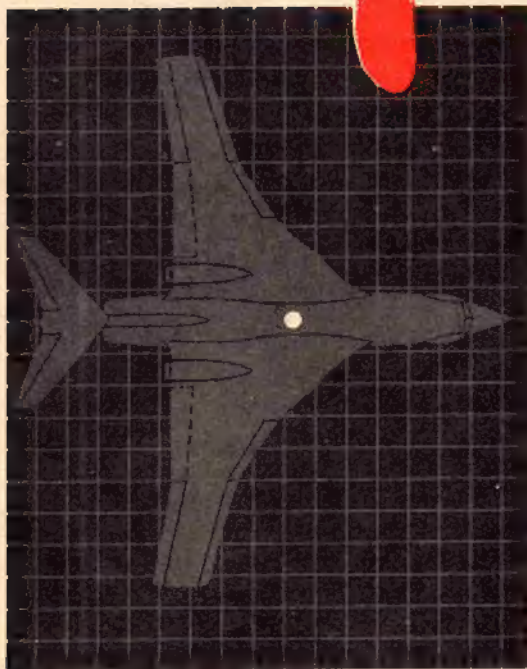
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City.....State.....







When we first heard that Dallas Sherman had latched onto a Mooney Mite we figured it wouldn't be long before he started showing up at PAA-Load meets offering to spot any lost entries. Sure enough that's what he did! Since this is the first time that anybody bought a big (well, fairly big) airplane to chase models, we asked Cal Smith to record event for posterity. It's "art-worthy!"

# HOBBIES for YOUNG MEN

EDITOR ..... ALBERT L. LEWIS  
 Technical Editor ..... Alex Dawydoff  
 Assistant to Editor ..... Rose Borello  
 Art Director ..... Aubrey Kochman  
 Art Assistant ..... Henry Harrison  
 Career Editor ..... Carl Happel  
 Editorial Assistant ..... Stephanie Notaro

Editorial Offices Located at 304 E. 45th Street, New York 17, N. Y.



This is the famous alchemist John J. Bstfzlk in action. He is a friend of Bob More's—page 34.



When Doug Rolfe was delving into the past history of the frisky MG (for "Morris Garages") there was some discussion on what he could squeeze in, what to leave out: see page 32.

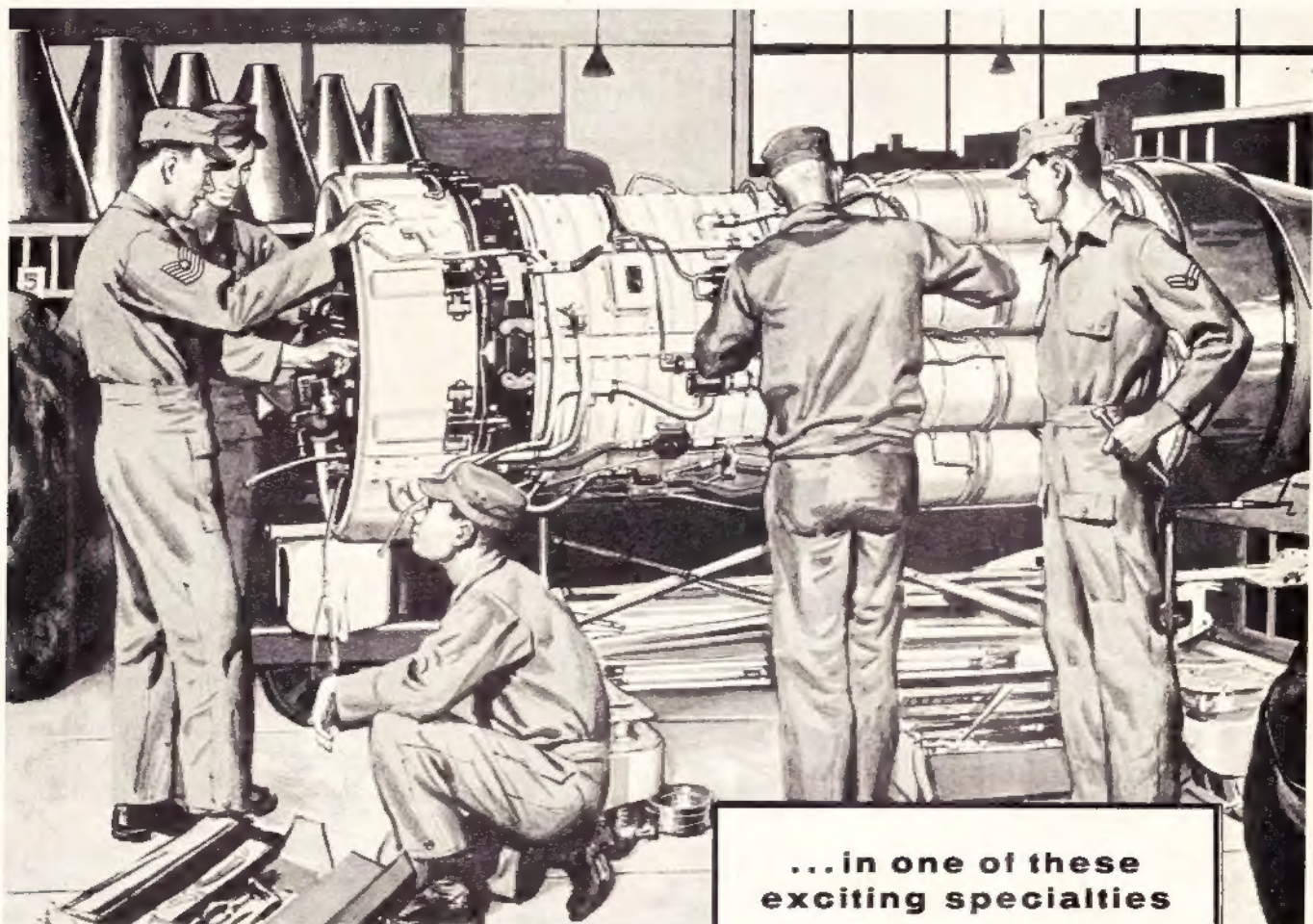


Here's Walt Musciano and his appealing landing ship model. You get a good idea of its rather large size. Perfect for R/C. Page 28.

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# MODEL BOATING

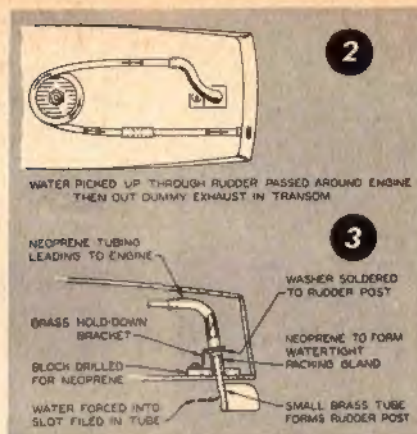
**Are you in the swim yet? Pretty hard to read all this and not get enthusiastic about boats!**

■ Featured model this month is Lowell R. Lamb's four-foot "Sea Maid" which is powered by water-jacketed McCoy .29 and radio-controlled by a Babcock unit. Mr. Lamb reports that the construction is plank-and-frame; beam is 10 inches. Pictures were shot on Super XX film at 1/50 sec. on f/11.

**Rather tricky but very neat way to get cooling water for a boat engine shown in Sketches 2 and 3 is the work of Pvt. R. Dons (U.S. 5644914, 2nd Enl. Stu. Btry., ARMC53, Fort Sill, Okla.).** He has used this on several boats and finds it works fine, providing plenty of water whether the boat is moving or not. Water is taken in through the hollow rudder tube, which is filed away on the forward half facing the prop (be sure to close up the bottom of this tube). Neoprene tubing is clamped down between a washer on the post and the hull bottom, not only forming a seal, but giving sufficient friction to hold the rudder to any position desired. Neoprene tubing also leads to the cooling tube which is coiled tightly

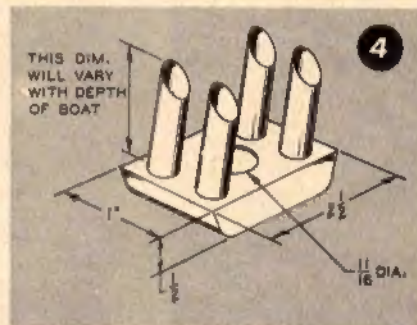
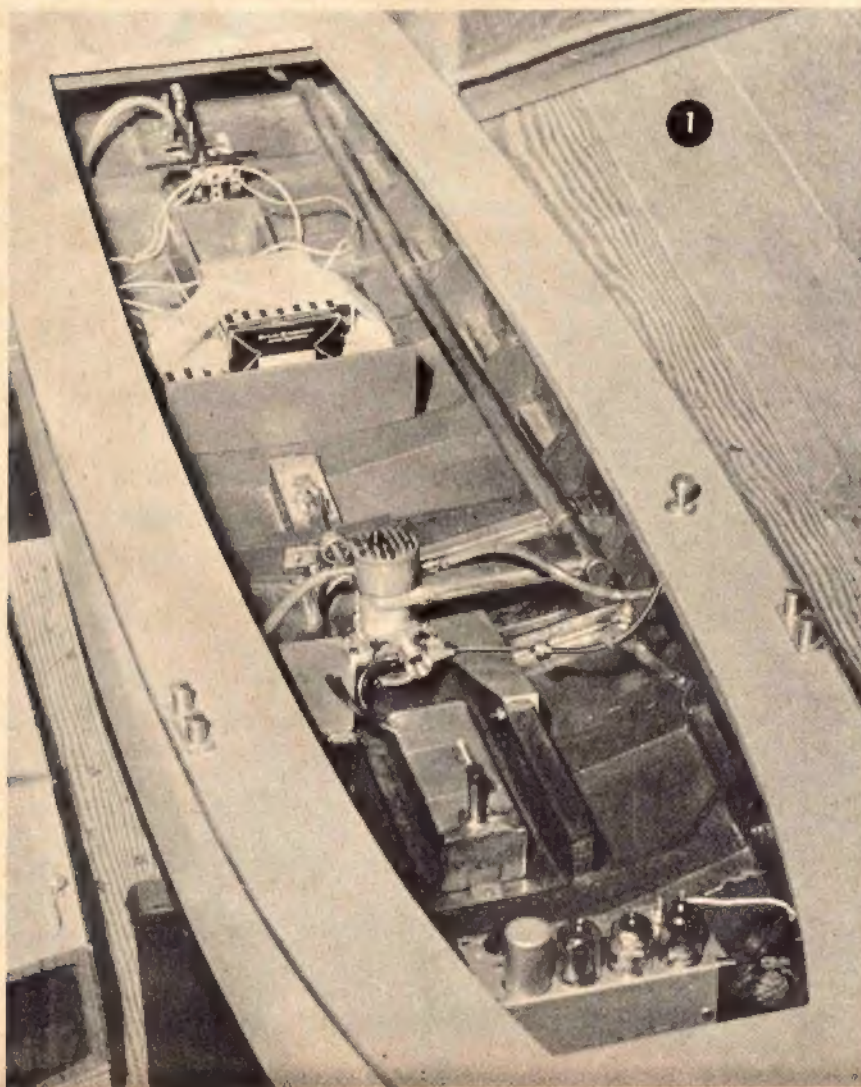
around the cylinder fins, and the waste water is led through a dummy exhaust at the stern.

**An effective exhaust manifold is another interesting item (sketch 4).** This was fitted to an Atwood .049 engine, which was mounted under the deck of a Chris-Craft runabout model, made by Harold Estok (5860 Lynn St., San Diego 5, Calif.). The engine is of the water-cooled variety, with scoop facing the prop, so there was no trouble with cooling, even when the boat was held stationary in the water. What did give trouble, though, was the sluggish running of the enclosed engine, which would never get the craft up to planing speed. Harold, figuring the exhaust fumes were fouling up the air intake, built the four-pipe manifold we illustrate. The dimensions shown are for the Atwood engine, but may be modified for others. With the manifold fitted, the boat ran 100% better, but Harold felt there was still some room for improvement, hence another single tube the same size as the



exhaust stacks (they are all of  $\frac{3}{8}$ " diameter thin wall stock) was installed so that the bottom end was just above the intake opening on the engine. The top end was cut to face forward (just the reverse of the exhaust stacks), making it act as a sort of supercharger when the boat is running at top speed. This was the final answer; the craft is usually started off rich, but after about half of a 15 ft. circle she reaches top speed and stays that way till the fuel is used up. A shot of this boat appeared on page 68 of our March 1955 issue.

**First Speed boat results of the season** come from Bob Graham (127 Cottage



St., Jersey City 6, N. J.), who reports on record trials held by the New York Model Knights at Kissena Park, Flushing, N. Y. High wind bothered the boatmen; there were 20 craft ready for trials, but not all had a chance to run before the gales started. Among the better runs were these: Class A (over 30 c.c.)—Henry Parohl, 45 mph; Class B (30 c.c.)—Henry Parohl, 56 mph; Class C (15 c.c.)—Bob Graham, 64 mph; Class D (home-made 10 c.c.)—Max Biederman, 78 mph; Class E (stock 10 c.c.)—Bob Graham, 67 mph. A number of new boats were brought out to show that the members had spent busy winters in their shops. Tom Demeskey had four ready

(Continued on page 59)





# EXCITING MODEL NEWS!

## TWO NEW DING-DONG DANDIES FROM DUMAS!

### CHRIS-CRAFT 18'

#### COBRA

Here it is — *exclusive* with Dumas: Chris-Craft's fast, flashy new 18' COBRA, in a sleek beauty of a model, 27 inches long, exact scale, complete in every detail, ready for gas or electric power and radio control.

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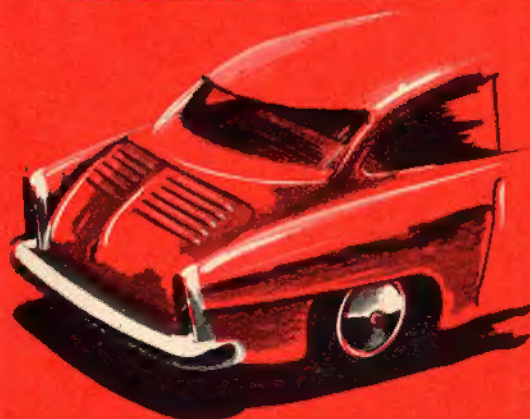


# AUTO DESIGN COMPETITION



**FIRST  
\$50  
AWARD**

The Gauchito, a rear-engined light car by Enrique M. Arance of Carapachay, Argentina. Unusual feature of the automobile is the false grille in front, which is actually a drawer containing the spare tire and tools. Engine 4-cyl., 72 cu. in. displacement; 85 mph.

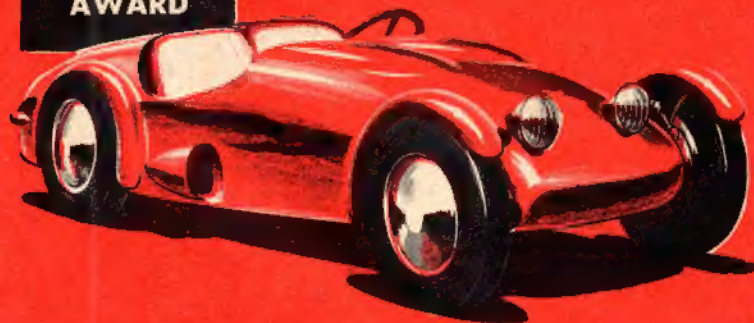


**SECOND  
\$25  
AWARD**

Sport Hard Top by Jim Walton of Tulsa, Okla. Features include large fender openings to provide better brake cooling and easier tire changing. Transparent plastic top for better all-around visibility is partially tinted. Combined headlights and fog lamps in fenders are of new type with minimum of glare.



**THIRD  
\$10  
AWARD**



Small competition car by Terry Henline of Neligh, Nebr. The tiny speedster has a wheel base of only 7 ft. It is powered by a rear-mounted, overhead-valve motorcycle engine of 40 hp. Weighing only 900 lbs., it has a speed of around 100 mph. The four motorbike wheels are covered by polished aluminum discs. Air scoop on side admits air to engine.

**It's easy to enter—**

**All types are eligible:  
restyled passenger cars,  
original sport jobs, hot  
rods, or military types.**

## AWARDS OF \$50.00—\$25.00—\$10.00 EVERY ISSUE

Cash awards will be made each issue for the three most significant auto designs submitted to this magazine. \$50 will go to the top design, \$25 to the second and \$10 to the third. You may submit sketches for an original design auto, for a restyled car, for sportscar, family sedans, record cars, hot rods, military vehicles or unusual trucks. Include side, front, rear and top drawings, plus sketches of the proposed vehicle from three-quarter front and three-quarter rear positions. Sorry, we cannot enter into any correspondence about this contest. Send entries to Auto Design, c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y.



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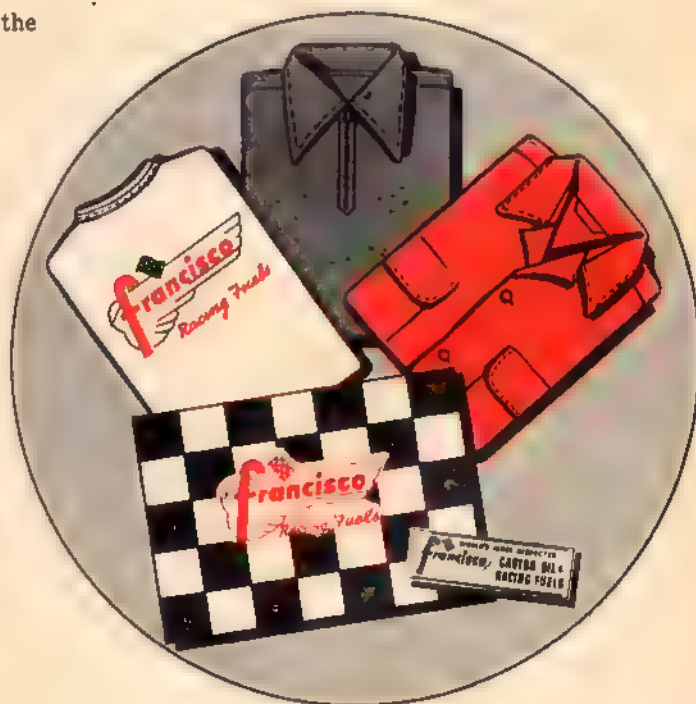
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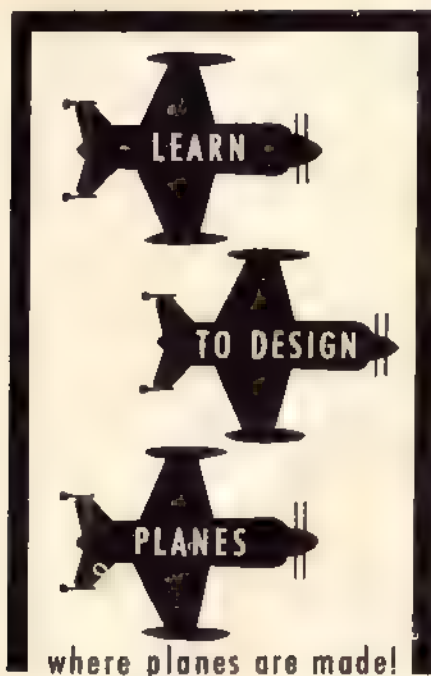
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## Everything Under Control?



Ring out, O bells! Unfurl the flag! Shout the glad tidings from the housetops! "EUC?" gets more space each month... because you asked for it!

A "universal" transmitter has been made up by Clark Proctor (545 S. 10th St., Saginaw, Mich.) from a regular Babcock BCT-4 transmitter. To the front panel he added a closed-circuit jack, a two-circuit pushbutton, and a SPDT toggle switch. As seen in circuit below, the jack may be used to check B current drain, or to plug in a Beep-Box or proportional pulser. SW1 is the normal on-off control of the BCT-4; with SW2 in the "On" position, the transmitter sends out a steady carrier for use with the regular control stick and A.F. modulation. When this switch is turned to "Off," the RF may be interrupted by operating the pushbutton, to control a straight CW receiver.

Clark has also snapped the B connection clips in the transmitter together, and plugged in a heavy-duty power supply, which could be either large batteries or of the dynamotor or vibrator style. Note that the pushbutton P.B. must be of the type that opens one circuit and closes another, when the knob is depressed. Certainly makes a highly versatile transmitter. (Don't forget, though, that any alterations of this sort made on a commercial R/C unit will void the manufacturer's guarantee.)

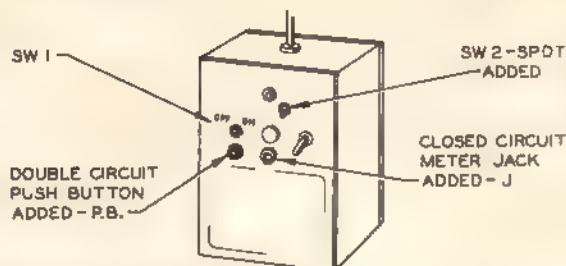
The Bonner rudder-engine system as shown on pg. 14 is now being used successfully by quite a few West Coast modelers. It is a better way to get rudder-engine control because to change engine speed the standard compound es-

capement requires the "pilot" to press, release, press, release, and press again, holding for approximately one second, and release. This is naturally more awkward than the quick blip used to change engine speed with the new system. Also the standard compound has rudder control positions 157 deg. apart which is less desirable than the 180 deg.

Webb Hill used this system to win a LARCS (Los Angeles Radio Controllers) contest at Miles Square. The quick engine speed changes made possible with this system allowed an easy touch-and-go landing despite the high wind. This control also permitted Webb to stop accurately at the required 50 feet for a prototype take-off. Darryl Bergstrom used this system to win a 1st at Los Angeles.

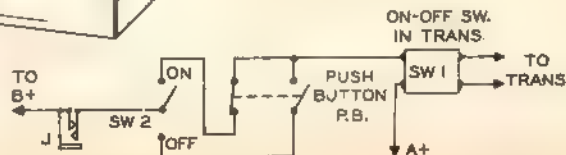
The 180 deg. compound escapements were formed by unsoldering the four-arm part from the standard Bonner Compound and substituting the joggled, two-arm part shown in the drawing. The neutral pawl is shortened slightly so that the joggled arm will clear it, thereby always providing right rudder as the next position after neutral. The cam on the speed governor wheel is so positioned that the contact points close momentarily just before right rudder.

In operation, a quick blip from the transmitter releases the crankpin arm from neutral. Then the receiver relay returns immediately to the normally closed contact position. This completes the circuit to the motor control unit be-



Here are several fine examples of the type of hints 'n' kinks contributions we welcome for this section. From \$15 to \$25 is paid for 'em in rough sketch form.

We need photos of interesting models for this section, as well as Model Boating, Model Car News and Hobby-Model World. We pay not less than \$10 for 1st picture used.







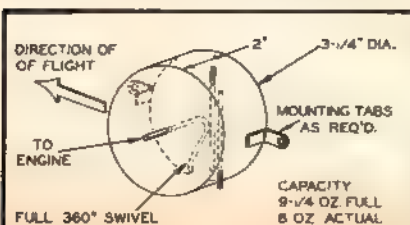
What channel you think they're on, Elsie?

cause the escapement contact points are closed momentarily by the speed wheel cam as the crank approaches right rudder. A pulsed signal (longer than a quick blip) does not operate the motor control because the receiver relay remains in the open position until after the escapement points have opened again. The signal must be a quick blip in order to permit the relay to spring back to its closed position while the escapement contact points are still closed. After a quick blip to change engine speed, the crank travels around to neutral again.

A modeler who has doubts about his soldering and mechanical technique is better off by not altering his escapements, but the system will provide the careful craftsman with the advantages described, for rudder-engine control.

"Triggering" is quite easy when flying with this system. However, when the "pilot" is used to keying a compound escapement, the tendency at first is to change the engine speed by mistake when left rudder is desired. Proper keying soon becomes second nature, but the modeler should practice keying on the ground before launching. On the first few flights, engine speed may be changed accidentally, until the new keying system becomes a habit. (Submitted by Frank Dasey, Redondo Beach, Calif.)

For those big stunt planes, we show a cylindrical fuel tank used by Ernie Kratzet (482 St. Clair Ave., Grosse Pointe, Mich.) and other members of the Radio Control Club of Detroit. Outlet to the engine is taken through a 360 deg. swivel tube, and note that the tank is mounted edgewise to the direction of flight. Ernie uses this tank in his big biplane stunter; tank has a capacity of about 8 oz. of fuel and was made from a tuna-fish can. Pressed-in rings on can ends add to rigidity, and the can Ernie used was 3 1/4" dia., 2" wide. Mounting tabs may be soldered on wherever convenient. The biplane has had its first flights incidentally, and seems to have real promise; has 1400 sq. in. of area, is pro-



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PRINTED CIRCUIT method is not used on these ESSCO receivers. Only 2 pcs of filament wiring totaling 8 1/2 in. is used. All other connections are made by direct termination of components. A comparable P.C. assay calls for 6 to 8 in. of fragile etched wiring with possibility of open circuitry caused by vibration & stress. This additional wiring adds undesirable capacity in the high frequency tuned circuits. We guarantee that our time & flight tested method is far superior & will outperform all other sets.

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Berkeley Buccaneer won 2nd in 1st international R/C event at Brussels, Belgium for French flyer. Uses split elevator tabs.



Ancient-looking German design, like most of its kin, fitted with two-speed engine, rudder and elevator controls.

pelled by a Fox .59, and weighs 12½ lbs. ready for action. RME.

**Contests and Clubs.** Organizational meeting was held at Walpole, Mass., and was attended by 27 modelers, with "proxies" from another 20 who couldn't make it. It was decided to go ahead with formation of a Radio Control Association for New England Area (official name not settled as yet) and temporary officers were selected, with John K. Ross—who had set up the meeting—as Chairman. Meetings will follow monthly flying sessions, and will rotate among various localities. Dues are to be decided upon, but initiation fee is \$2. Group decided to affiliate with AMA. New members are being solicited, and those interested may contact Mr. Ross at 23 Lantern Lane, Wellesley Hills, Mass. Club members will be insured 100%. Mr. Ross tells us that the New England R/C Championships are scheduled for Aug. 14 at Beverly, Mass., but exact location not yet selected. Keep in touch with him for full details.

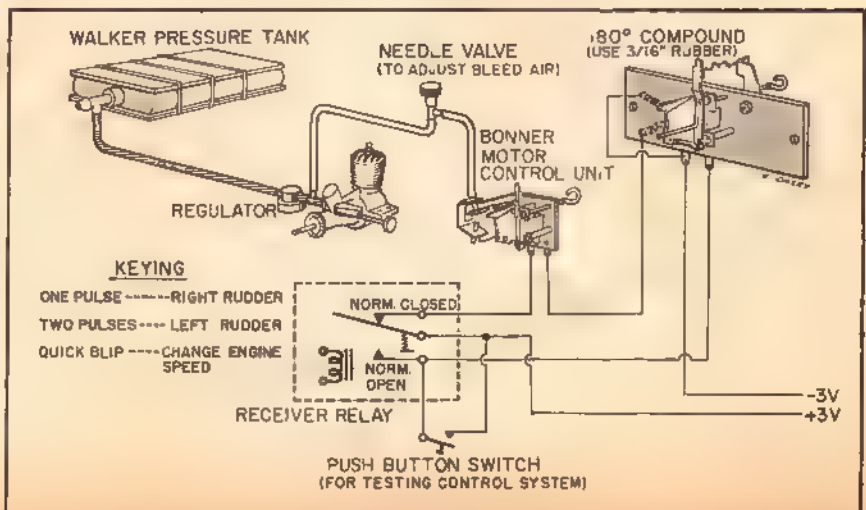
Some news of doings in L. A. area comes from Bill Butler (8856 Earhart Ave., Los Angeles 45, Calif.). Bill is publicity man of this large and active group. He says a contingent took in the Turlock meet and brought home a fair amount of "bacon"—three out of the six trophies offered. Dean Kenney was first in Multi-Control, Harry Sprague 3rd in this class, and Vic Nelson was 3rd in Single Channel. There was a very high wind, but Howard Bonner put on a fine demonstration with his new shoulder-winger fitted with 2-channel equipment. LARKs meetings are third Thursday of each month at Parkview Playground, near MacArthur Park in L. A.

Monthly club contests are popular in the group, and at latest report, Dean

Kenney is top Multi man, while Webb Hill has two "legs" on the Single Channel trophy. Dean has been using slightly modified Tuned-Relay receiver similar to that in May ATH. LARKs have been selected to run the R/C Event at 1955 Nats (to be held at Los Alamitos Naval Air Station) and Howard Bonner will be R/C Event Director.

This club has also been experimenting with R/C pylon racing in cooperation with Keith Storey of the F.A.S.T. group; they have tried to hold one pylon race each month, but wind has ruined this schedule. At the one race they were able to stage, Webb Hill was winner, and as might be expected, the big trouble was climbing against the wind on the upwind leg of the 2-pylon course. Keith has told us that the boys are all convinced this event will take a special plane; he says the feeling is that .19 is plenty of power, and in fact—you can get in plenty of trouble with an .09 racing plane! First running of the Pylon Race was made with regular sport R/C planes and there were six entries who flew, with 14 more ready to go, when the wind took over. Planes were flown singly against time, and while there was a bit of trouble with depth perception and anticipating the pylons, it is felt this will come with more practice. This event seems to be a lot of fun, and we hope to have more data on it, as soon as the LARKs and F.A.S.T. pioneers can run a few more races.

R/C League of North Carolina had 110 members at last reports, and meetings are being held 1st Sunday of every second month, with an all-day flying session first, then supper, and evening meeting. Group held its first Invitational R/C Meet over Memorial Day week end at Chapel Hill, N. C. (notes on this in







German model has actuator movements controlled by air-bleed chambers. Diaphragms move controls via attached wires.

later issue). League is AMA-chartered. Emerson Ford is Pres., while Ralph Correlle (Fairmont Ave., Salisbury, N. C.) acts as Secretary, and will be glad to hear from other state R/C groups or individuals.

During a recent visit to Washington, D. C. area, we had the pleasure of meeting with quite a few members of the DC/RC, and engaging in both boat and plane R/C operation with them. Several members of the "Marine Division" of the DC/RC invited us to join them at the Lincoln Memorial Reflecting Pool, a really beautiful spot for this activity. Saw the first running of little Sterling .19-inchers built by Mrs. Walt Good (power and R/C installation courtesy of the old man) and enjoyed sailing our own version of the same boat—a joint construction effort of Mrs. McEntee and Yours Truly. Two much larger and faster electrically propelled boats owned by Jack Romagna and Murray Colliere also went through their paces.

Flying sessions at the club field brought out three widely different dual-simultaneous proportional planes, all of which flew beautifully. Walt Good's once-tired old Rudderbug (the original of this species) acts real frisky now, and those pylon turns will make the F.A.S.T. boys green with envy. The Good control system is being constantly refined and we hope to have complete data on it in ATH later on; it certainly performed perfectly in the Bug, and in another ship which was flown with the same transmitter.

This plane has to be seen to be believed—it is a Live Wire "Kitten" built and equipped by Al Diem, and the entire R/C installation weighs just 10 oz. Everything is sub-min. of course; the

(Continued on page 67)

Gobeaux brothers won this meet by margin of 100 pts. With Dr. father they operate 12 identical models using Micron 60's and fly every day. Special trailer hauls fully rigged models and contains xmr. Like some folks hire gardener or butler, family employs full-time hobby mechanic.



Survival of early postwar years, towline R/C gliders are on downgrade; they can score but 1/10th points of power model.



Lazy man's transmitter. Long "Joystick" takes backache out of flying for Belgium's Previnaire. Pretty neat, n'est-ce pas?




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## Model Car News



**Praise the Navy and pass ammo can (that surplus one filled with tools)—we're off!**

Active group in the Lake Michigan area is the Chicago Mite Race Car Club. A branch of the National Mite R. C. A., this club has an elaborate indoor track for the little cars, plus an outdoor track seen above. At the latter, the inner track is for the Mites on 17'6" cable, while around this—just inside the fence—is a standard 35' cable track for the bigger racers. The outdoor track is at Michigan City, Ind. Construction views of this Club's new indoor rail track are seen below; it will be 36' long and 23' wide, with two 17' straightaways. The top rail will be approximately 100' long. This track was started last October and the club figures it to be worth about \$3500; however, for those who are willing to do all the work themselves, actual cost of materials is only about \$300.

Information on this Club and the N.M.R.C.A. was sent in by Mr. A. Martin, who has recently been elected President of the National Association. The new Secretary-Treasurer is Fred Hamer (4635 McDowell St., Chicago, Ill.). The N.M.R.C.A. has affiliated clubs in Chicago, Kokomo and Muncie, Ind., Logansport, Pontiac and Detroit, Mich. Watch our Hobby Calendar for racing dates set up by this Association; we'll have addresses here of contact men in the cities mentioned above, but meantime, interested hobbyists can contact the Sec.-Treas. for information.

The two car models are the work of Tim McLaughlin (5419 S. Hermitage Ave., Chicago 9, Ill.) President of the

International Association of Automotive Modelers, part of a large collection of such models that he owns or has made for other persons.

Top shot is of a 1939 Jaguar SS-100 in 1/4" scale which has 34 coats of lemon-cream yellow lacquer and is fully upholstered in genuine alligator hide. Has scale Rudge-Whitworth wire wheels. Model was built for TV-man Dave Garroway.

Second car is a 1/4" scale model of 1933 Type 59 Bugatti. Big car from which this one was modeled was originally a 3300 c.c. Grand Prix racer, but was subsequently fitted with road equipment, and it is shown this way in the model. Latter is finished in Bugatti blue, as is the big car, has Bugatti blue leather upholstery and silver wheels. Incidentally, every part of all the models shown here was hand made, even the tires being turned from pine or basswood. Mr. McLaughlin tells us that the I.A.A.M. has well over 150 members, most of whom are "lone wolves," but there is one local chapter, in Long Beach, Calif. The Association keeps an extensive file of blueprints, plans and photos which are loaned out to members for a very small fee.

Another group of photos of models built by members of the IAAM has been received from Phil Jensen (Skyview Dr., R.D. 1, Cohoes, N. Y.) who edits the *Bulletin* of the Association. We'll have some of these fine shots in a future issue. Mr. Jensen has asked us to note that this *Bulletin* is published bi-monthly.







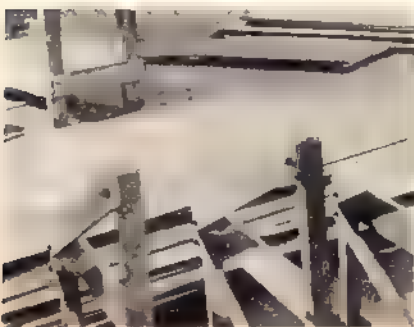
ly, not monthly as we stated earlier.

Things are shaping up for a busy racing season, according to our faithful informant Bob More (66 W. Elizabeth Ave., Bethlehem, Pa.). Annual meeting of the Middle Atlantic Circuit was held in New Brunswick, getting things off to a good start. First race of the season was at Fox Speedway, three and one-half miles north of high school at Bethlehem, Pa.

Speedway at the Naval Air Station, Lakehurst, N. J., will be kept in operation this year, due to continued efforts of Petri Antenucci and Jack Wolf. Station Commander authorized a macadam coating for the entire infield area of this fine track. Bob More says it seems things are always on a more grandiose scale at this Station, where they have handled the biggest airships—wide-open spaces even wider, weather more intense than elsewhere, etc. He loves the place. Bob also offers thanks to the North Jersey boys who have been responsible for making the Paterson track a reality—Bob Bratton, George Peczek, Joe Sampias, Nick Amoresan, and any others he might have missed.

Oldtimer Walt Kishbaugh, who was active in '43 and '44 while a resident of Bethlehem, recently wrote Bob a nostalgic letter from his present home near Hazleton, Pa. He used to race on the Central Park board track located between Allentown and Bethlehem; at this time Cyclone fences for tracks hadn't even been thought of and the main safety measure was fleetness of foot. Speeds in the 70's were obtained from such engines as Cyclones, early Hornets, and movie star Reginald Denny's Denny—

(Continued on page 74)



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# HOBEBIES

[illegible]



Here's the real story, related by Pan-Am's Educational Director, of how this globe-girdling airline took on the sponsorship of a brand-new type of air-modeling event



Snuggled up to its big brother, Dallas Sherman's PAApoose (really a Mooney Mite) stands ready to take off on model search.

## Model Aircraft With a Mission!

By GEORGE GARDNER

■ If a man could jump like a flea, he could clear the Chrysler Building in one leap. If he could lift like an ant, he could carry a Cadillac. If he could glide like a gooney (Midway Island albatross), he could sail through the breeze with the greatest of ease all the way from the Chrysler tower to the Champs Elysées without flapping a finger. Or so say the flea-conscious, ant-minded, gooney-struck statisticians.

Air-minded figures can dream too, and they say that if Pan American World Airways' Flying Clippers could perform like Grand National Air-Model Champion Woody Blanchard's PAA-Load models, they could hop off in 50 feet, climb at 50 degrees and glide 50 to 1. As for

payload: If a full-size Clipper transport plane could lift like Bob Moncrieff's record-holding Clipper Cargo Model, it could haul a medium-sized sperm whale, or five large African elephants, or 200,000 PAA-Load dummy pilots (American Class).

Before the general experts start swarming all over us, we concede the point that Bob Moncrieff and the rest of the Clipper Cargo experts are shooting for flights of 40 seconds only, whereas a Clipper Captain departing from Idlewild for a non-stop flight to London expects to be aloft at least ten hours.

What we are attempting to point out is that the modelers have found a way to lift payload three to five times the



Pan-Am, the model builder's airline: USA Wakefield team departs for finals in Sweden. Captain was Bill Fletcher.



weight of an empty model, whereas full-scale airplanes do well to lift payload of one-quarter to one-third the weight of the plane empty.

The object in the Model Clipper Cargo category of PAA-Load Event is to fly with the greatest possible payload. The model with the mostest is the winner. It's as simple as that.

But designing and constructing a winner and record breaker like Moncrieff's or like the model with which Herb Kothe won the event at the 1954 National Championships, is by no means simple. Moncrieff's record performance was 32.75 ounces of payload flown 40.8 seconds, in a model with an unloaded weight of ten ounces. Kothe lifted 25.5 ounces in a model weighing seven ounces.

Both Moncrieff and Kothe were flying original designs. To date, there is no kit for Model Clipper Cargo. There are several excellent kits for standard PAA-Load, including the brand-new "Payee" designed by Woody Blanchard and produced as a kit by Berkeley Models. But Model Clipper Cargo has emerged as the highest refinement of PAA-Load flying, and thus far the entries are original creations. It calls for comprehensive knowledge of aerodynamics and engines and outstanding ability as a model aircraftsman. It requires experience and ingenuity to produce a model which can make a good showing in the event, let alone win it.

It carries to the highest power a thought expressed to me in a recent letter from Herb Kothe, our first PAA-Load Champion in 1948, and '54's Clipper Cargo winner. Said Herb: "I have found that there are many aspects of model airplane design and building for PAA-Load events that are a definite asset to me in my occupation of an aircraft structural design engineer. Since optimum performance PAA-Load designs, such as Clipper Cargo, require the ratio of airframe weight to total aircraft weight to be small, the structural problems involved are more nearly related to those found in the design of real aircraft. My PAA-Load designs have provided a 'proving ground' for some of the structural principles I use in the design of full size aircraft components.

"I've found that my PAA-Load modeling hobby and my occupation are of mutual assistance to each other and are an interesting combination."

Now maybe that makes PAA-Load flying look technical and complicated. It could frighten newcomers to modeling. So let's make it clear right now that the original concept of PAA-Load still governs in the standard PAA-Load Events. In the America Class and International Class of PAA-Load the aircraft are very similar to conventional free flight models but with the special ability to fly with payload. This payload consists of five ounces for America Class models, which are powered with engines up to .050 cubic inches piston displacement, and 16 ounces for International models, powered with engines of not more than .1525 cubic inches (2.5 c.c.) displacement.

Payload consists of a 4-ounce dummy occupant plus an ounce of simulated cargo for America Class; and 8-ounce dummy occupant plus 8 ounces of simu-

lated cargo for International Class. Contest is for total elapsed time in three official flights.

Old and new PAA-Load enthusiasts are hereby put on notice that there are new rules in effect this year. They are available in booklet form, and you may obtain the booklet, without charge, by writing to the Educational Director, PAA, 28-19, Bridge Plaza North, Long Island City 1, New York.

I should point out also that the new rules set the stage for a brand-new series of performance records (except in Model Clipper Cargo in which the minor rules changes for 1955 do not invalidate existing records). In America Class and International Class, the new records will be the best performances certified to the Academy of Model Aeronautics in 1955. Some anticipate that since weight requirements have been raised, the records will drop to lower elapsed times. Knowing modelers, the sponsors of PAA-Load confidently expect that even with the tougher rules, the times will rise.

This confidence in model aviation is a product of nine years' experience with a group of hobbyists who are unexcelled in devotion, perseverance and ingenuity. It should be added that these modelers are learning a lot about aerodynamics and internal combustion engines and more often than not they are preparing themselves for lifetime careers in aviation by pursuing this fascinating hobby.

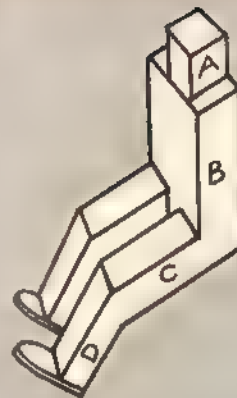
Which leads to the natural question: Where did PAA-Load Event come from, and why does Pan American World Airways sponsor it?

The second part of the question is largely answered by the previous comment that modelers learn a lot about aviation by pursuing their hobby. It is in the interest of the aviation industry to encourage the hobby.

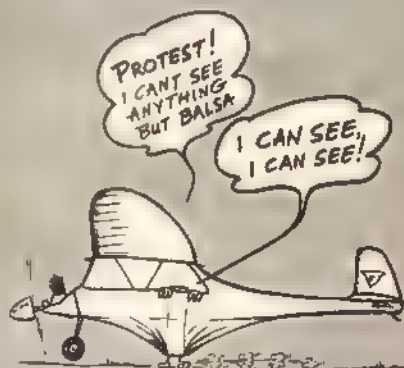
But to inquire into the source of PAA-Load Event itself, it is necessary to examine the life and times of a Pan American executive whose name is Dallas Sherman.

In 1947, as Educational Director of PAA, I sent out a Company plea for suggestions as to a program that would be attractive to young people of mechanical bent, and educational in the principles of air transportation. Among the responses was one suggesting an event for model airplanes with a mission of carrying payload like their full-size cousins. Originator was the PAA Operations Representative at Washington. So I flew down to Washington for my first meeting with Col. Dallas B. Sherman, USAF Reserve.

He was more than ready for me. I learned that, without a name, PAA-Load was already several years old and had a history stretching from Houston to Hollywood and across the Atlantic and the Sahara to Khartoum, Anglo-Egyptian Sudan. Sherman, a model builder and flyer since he was 10 years old, had built the first payload carrier at Houston, Texas in 1936 when he loaded his free flight gassie model with a dummy pilot of size and weight proportional to the Brown .60 engine. The dummy pilot then was fitted with legs and feet attached at normal sitting positions, and he was allowed the luxury of leaning backwards



"Grand PAApy" above was original dummy developed by a Lieutenant in the Texas Air National Guard by the name of Dallas Sherman. GP's size, wt. were in proportion to Brown .60 engine. Today's PAA-Load "dummy" pilot is in pretty bad "shape" compared to this trim fellow.



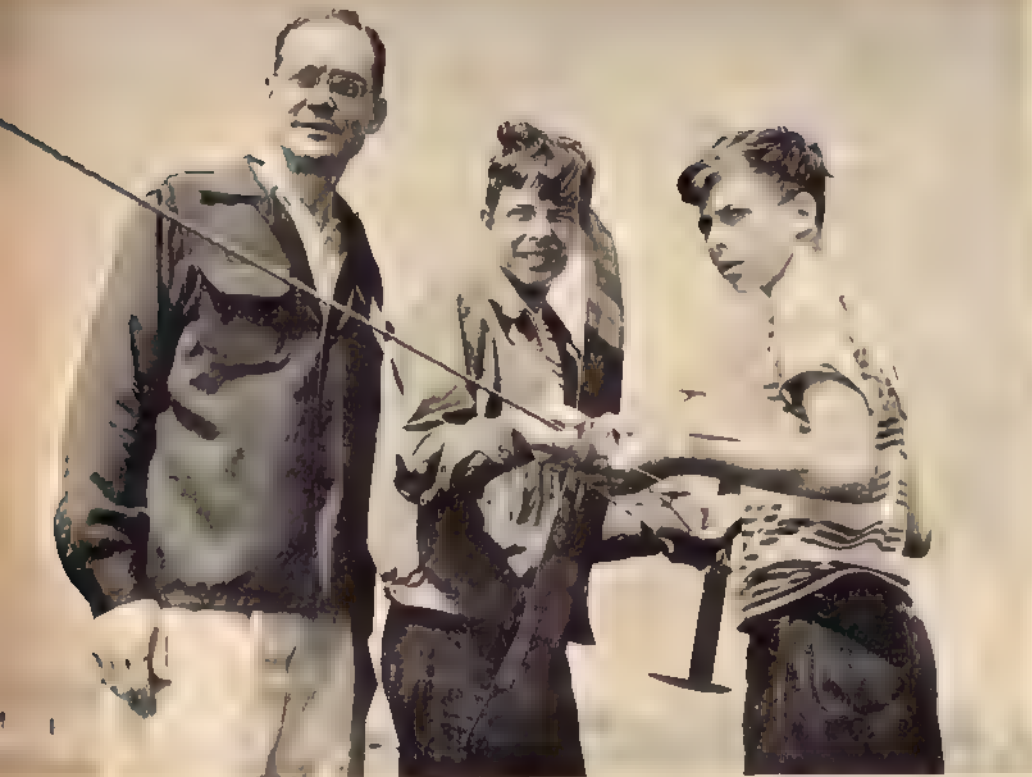
### BLIND TAKEOFF

According to latest PAA-Load rules booklet entries must be designed so that the dummy pilot is "provided simulated 'visibility' through transparent areas to the front and to both sides..." Paul Gilliam illustrates that various interpretations can be given rule.



Earliest known flight of airmail by model aircraft occurred at National Model Airplane Championships in Olathe, Kans. on July 31, 1949. Contestants carried aloft in their PAA-Load models small first-flight "covers" which then went "regular" airmail to notables.





PanAm's educational director with twin team flying in rubber-powered PAA-Load.



Jess Sheppard ROG's a payload entry at Mirror Model Flying Fair. Event is big feature each year at East's big MMFF.

this was the proper program to get the desired results. PAA top officials tentatively agreed, and PAA-Load was set for public introduction at the 1948 Olathe "Nationals."

As often happens with new ideas in big companies, our bosses said to us: "Since you think this thing will work, suppose you take on the job of doing it" . . . of course, "in addition to your other duties." I was assigned as Administrator of the PAA-Load program; Dallas Sherman was named Technical Advisor. Since then, we two have been as much as half a world apart, but by PAA air transportation, air mail and radio, Dallas and I have missed scarcely a week for conferences on behalf of the PAA-Load Model Airplane Program.

Many folks—interested in aero modeling and in productive youth guidance—have given us enthusiastic help and support. There are about 15 million model airplane fans in the U. S. and at least that many more in the other friendly countries. Four to five million youthful enthusiasts read magazines which have recognized and stressed the educational value of PAA-Load.

An estimated million spectators watch PAA-Load Event contests annually. More than half of all contestants in larger model meets enter the PAA-Load events. PAA-Load has attracted the most colorful personalities and outstanding champions of the hobby. Russ Nichols, for many years Executive Director of the Academy of Model Aeronautics, has been a guiding light, since the original Olathe debut. C. O. (Pop) Wright, former AMA President, flew at that event and in many subsequent PAA-Load con-

"not more than 15 degrees from perpendicular to the normal line of level flight"—the rules said. (Contestants who believe that rules always get more complicated, please note.)

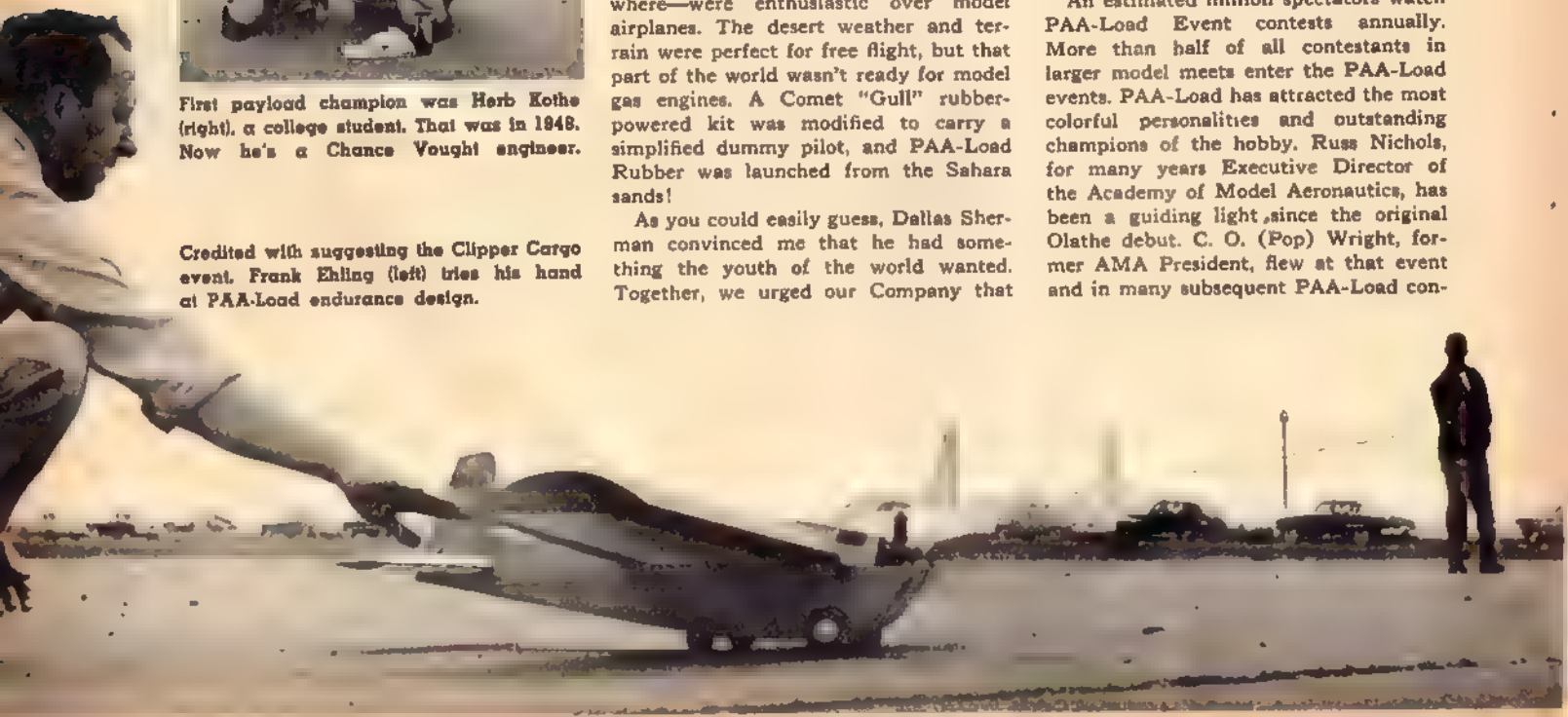
When World War II came, Lieutenant Sherman took off for Africa to captain multi-engine transports for PAA, and later, all over the world for the Air Transport Command. At Khartoum, where he rose in rank to Lieutenant Colonel, Sherman discovered that Sudanese youngsters—like youngsters everywhere—were enthusiastic over model airplanes. The desert weather and terrain were perfect for free flight, but that part of the world wasn't ready for model gas engines. A Comet "Gull" rubber-powered kit was modified to carry a simplified dummy pilot, and PAA-Load Rubber was launched from the Sahara sands!

As you could easily guess, Dallas Sherman convinced me that he had something the youth of the world wanted. Together, we urged our Company that



First payload champion was Herb Kothe (right), a college student. That was in 1948. Now he's a Chance Vought engineer.

Credited with suggesting the Clipper Cargo event, Frank Ehling (left) tries his hand at PAA-Load endurance design.





tests. College student Herb Kothe won the first event and has continued on to become an engineer with Chance Vought—and to continue winning PAA-Load prizes. (Ed's note: ATH featured Kothe's original PAA-Load winner).

Bill Effinger, President of Berkeley Models, produced the first PAA-Load kit in 1948 and is featuring the 1955 "PAYEE" kit designed by National Champ Woody Blanchard. Frank Ehling first suggested Model Clipper Cargo, a development of PAA-Load, now accepted as the most challenging and fascinating event on the free-flight roster. In addition, Ehling designed the highly successful Jasco series of PAA-Load kits for standard PAA-Load, and now we have it—with endurance and fuel economy added. Ray Mathews, CAA inspector, trained one dummy pilot to such proficiency that he won for his master over \$600 worth of PAA-Load prizes before retirement from flying Ray's "Crowbar."

PAA-Load events are featured in Australia, Cuba, England, France, Germany, Guatemala, Hong Kong, Italy, Japan, New Zealand, Puerto Rico, Scotland, Union of South Africa, and U. S. A., with India, Indonesia, Mexico, Thailand and others coming up fast. There's just not enough space to name all our PAA-Load friends, helpers, and champions, but our sincere thanks to them all!

To keep PAA-Load on the beam, we publish and distribute the PAA-Load rule book. Translations of the rules have been made by modelers in other countries where PAA-Load is flown. Helping further to understanding of the objectives and procedures involved, we have made two 16-mm. color-sound movies: "The Nationals" and "From Little Wings" which are available for model club and similar meetings. Almost daily we answer letters questioning technical details and their application to the rules. There are continuous streams of ideas and suggestions flowing in from all over the world, each of which is studied, discussed with experts, and many find their way into the rules or whatever.

You can imagine how happy I was to have Dallas Sherman return permanently in late 1953 from five years in the Orient as PAA Director for Far East. The Far East modelers were sorry to see him leave and the Japanese gave a meet in his honor complete with presentation of gold-illuminated scroll of appreciation and a detailed model of the Wright Flyer. (Dallas will talk your ears off about the Wright Brothers). His birthday is February 22, same as George Washington. Editor Lewis thought it would be a nice idea to honor Dallas' and George's common birthday by staging a PAA-Load contest with models flying silver dollars across the Potomac. For prizes, we offered the highest air cargo tariff ever published: a silver dollar an ounce per mile, plus birthday party lunch for all contestants! The first one of these affairs almost busted my 1954 budget! With fair favoring winds, a dozen models hopped the river with about 80 total ounces payload and landed on the runways at Bolling AF Base. Dallas was mighty pleased, but he left

(Continued on page 81)



## Can JAPAN Ever Recover?

■ While there is little doubt that Japan can make a complete recovery from World War II, there's some question as to whether Japanese aeromodeling will ever be the same after a prolonged visit by Dallas Sherman, the Grandpappy of PAA-Loading. Mr. Sherman served for 5 post-war years as PAA Director for the Far East with headquarters in Tokyo. During that period he devoted much time to helping Japanese air-modelers get started in club and contest activity. When it came time for him to return Stateside, the Japanese gave a meet in his honor and presented Dallas with a gold-illuminated scroll of appreciation and a detailed model of the Wright Flyer. (Modeler Sherman has written a stage play on the lives of the Wright Brothers).

A few fragmentary samples of evidence are presented herewith as an indication of what can happen to any country's modeling movement when D.S. moves in! 1. World's first over-water meet—just fly your payload model across 5 miles of water from an island to the mainland! 2. Construct a 1" to 1' control line flying scale model of Pan Am "Stratoclipper"; spans 12', weighs 45 lbs.; 4 Anderson Spitfires. No, Japan will never be the same!





# Baked Rivetless Aluminum Wing

## Is Unusual Feature Of This

## Polyester-Plastered Plane!



By BILL WISNIEWSKI

# "Bitsy" INTERNATIONAL

# SPEED CHAMPION

**This noted speed designer whose "Screamin' Demon" plans in ATH led more than 50% of the country's control line speed flyers to use pen sac pressure tanks, now tackles the F.A.I. records and encourages you to join in; rack up a new mark yourself! Some mighty valuable data for all types of model building.**

■ There has been an increasing interest during the past year in international F.A.I. modeling. With the K&B Torpedo .15 available, I decided to give the Federation's Class I category a try. To tell the truth I was amazed at the results. The first hop on the little job shown here was over 120 mph. The fastest to date has been 124 mph—considerably more than the record. I am waiting now for F.A.I. speed trials around this part of the country (Southern California).

I have used a number of new materials in this airplane; that is—they were new to me. I used glass fabric #120 to reinforce the entire airplane along with a polyester resin which is fuelproof. This is available through your hobby show from a number of concerns such as Berkeley and Midwest. Another new product utilized here is Epon Cement L-1372 (Specialty Resins, 2801 Lynwood Road, Lynwood, California) which was used to glue the metal wings together.

Before you start construction there are a few simple machining operations to be done to your K&B .15. Remove the cylinder and head from the engine and machine to 1" diameter. Remove the needle valve body, drill and tap through the venturi 10-32 and install a Dooling type needle valve and jet modified as shown. Machine a spinner

and back plate from dural. Make the hold-down fitting from a bicycle spoke and a piece of 1/32" steel. Solder this unit well as it holds the airplane together. Be sure to run your engine in before a contest or you will have trouble with freezing due to the close piston fit.

Construction is as follows: Start by selecting two pieces of white pine or hard balsa  $\frac{3}{8}$ " x  $1\frac{1}{2}$ " x 12". Hold the blocks together by using wood screws driven about  $\frac{1}{2}$ " from the end. Turn on a wood lathe or carve to the contours shown on plans. Hollow the bottom to 3/32", leaving pads for mounting the engine and for dowels to locate top to pan. Cut the pan off as shown on the plans. Have your local foundry cast an aluminum pan for you. Cost is about \$1. Sand the top of the pan flat and mount the engine by drilling and tapping for 4-40 screws. Then hollow out the top shell to 3/32" wall thickness, leaving pads for locating dowels. Cup top to clear engine and tape the pan and top shell together. Drill  $\frac{1}{8}$ " holes through the top and into the pan for the locating dowels. Glue the dowels in place while the top and pan are taped together. Set aside to dry. The spar is made from birch or some similar hardwood. Slot the spar for the bellcrank; be careful not to cut the slot too wide or it will weaken the spar.





Bill reports that he finds #120 glass cloth best to work with; cut glass cloth to desired shapes, leave ample edging for trim.



Some folks are allergic to the glass fibers and/or the resin; use in well-ventilated area; be suspicious of any rash on hands.

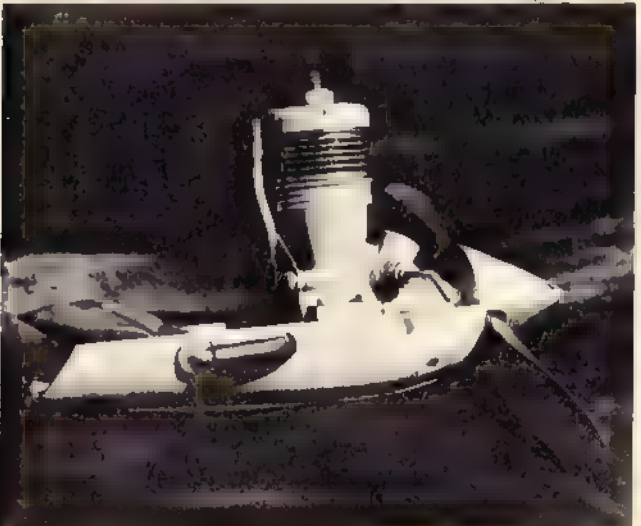


Household or model cement can be used as adhesive for glass cloth, but polyester resin, though harder to work with, is better.



Note cloth is cut considerably oversize. This permits pulling it taut while stretching it around parts. Trim while drying.

Wisniewski's powerplant practices call for cutting down the diameter of .15's cylinder and head. Job for an expert, match.



Bill's now famous fountain pen sac-pressurized fuel tank seen here. Remember—the pen sac must be of natural rubber.





## BITSY — F.A.I. Speed Design



Cut a notch in the top shell to take the spar. Glue the spar in the fuselage using plenty of adhesive.

Cut the stabilizer from 1/16" birch plywood. Cut away stab for elevator. Make elevator from 1/16" dural. Drill holes in stab and elevator for hinges. Make control horn from 1/32" soft steel and rivet to elevator. Use 1/32" soft copper wire for hinges. Insert wire through holes, wrap under and solder ends. Notch fuselage top 1/16" deep to take stabilizer. Make bellcrank and install control system. Glue stab in place, being sure of correct alignment with parting line of fuselage.

Make rudder from 1/16" birch plywood. Be sure to cut away to clear control horn and pushrod. Glue rubber to fuselage (no offset). Make rudder fillets from 1/16" balsa and glue to sides of rudder making sure that the control horn and pushrod clear. Wrap two or three layers of masking tape around the cylinder and head of the engine. Carve the cowl and baffles from a block of balsa, fitting it closely around the engine cylinder. Leave the sides of the cowl 1/16" thick at the cylinder. The baffles should be smooth to allow free flow of air around the cylinder. Make the cowl top of pine. Glue cowl and top to fuselage.

Cut the wings from .012-24 ST aluminum to the pat-

tern shown. Bend the leading edge over a sharp straight edge. Form the airfoil so that the upper chamber is greater than the lower (similar to NACA 2412). Sand the trailing edge and tips with coarse sandpaper. Form the tips from hardwood or aluminum. Mix some Epon cement and spread a thin layer between the trailing edge and along the tips.

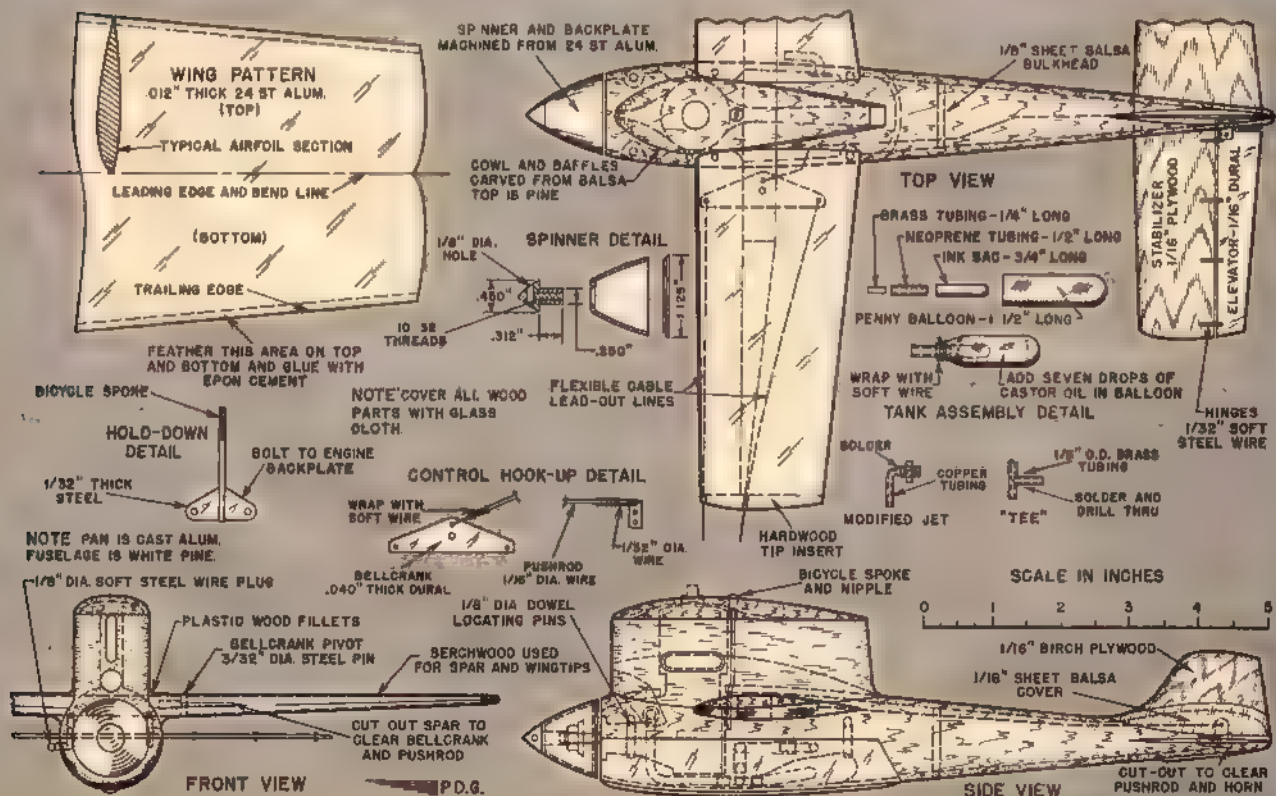
Using a straight flat piece of wood or metal, clamp the trailing edges together and insert the tips. Place wings in an oven at 200 deg. to 250 deg. for approximately one hour. The heat cures the cement faster and insures a good bond. Thread flexible cable through left wing tip and attach to bellcrank. Glue the wings to the spar. Use Plastic Wood to hold them in correct alignment on the fuselage. Glue the rear bottom half of the fuselage to the top half. Glue 1/8" balsa bulkhead in place. Sand entire airplane smooth. Cover fuselage, stabilizer, rudder, cowl and wing fillets with #120 glass cloth. I have tried two methods to apply the glass cloth. Household cement was one. It is easy to work with, gives a good bond to the wood, but it is not fuelproof. The other I used is polyester resin. It is fuelproof, gives a good bond and is a little harder to work with.

Here are the steps to follow:

1. Cut the glass cloth to desired shapes leaving enough to trim.
2. Apply a coat of resin or cement to the bare wood.
3. Apply glass cloth and work out air bubbles from underneath.
4. Saturate cloth with resin or cement.
5. Trim excess.

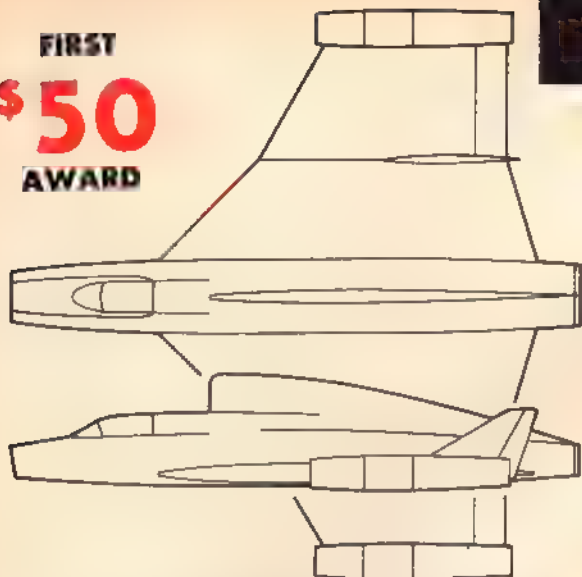
(Continued on page 65)

Full-size plans for Bitsy U-control speed model part of Group Plan #855 available from Hobby Helpers, 770 Hunts Point Ave. N.Y.C. 59 (50c).





FIRST  
\$50  
AWARD



The "Sea Shark," a novel VTO type interceptor by Peter J. Davis, Jr. of Miami, Fla. It is powered by two turbojet engines in the fuselage and two ramjets on wing tips. The wing tip powerplants rotate through a 90 deg. arc to provide lift-thrust, similar to the method used on the Bell VTL. However, take-off and landing procedures differ. The Sky Shark takes off and lands in an extreme nose-down attitude. Leaving ground, it actually "backs-up" into the air; on landing, nose wheel touches down first and then the plane settles down. The big dorsal hump contains fuel and also acts as a stabilizing fin. Wing span is 46 ft., length 48 ft., maximum speed around 850 mp.

## AIRCRAFT DESIGN COMPETITION



Single-place lightplane by Charles Fennen of Houston, Tex. Simple straightforward design which in mass production should be inexpensive. Duralmold fuselage, corrugated dural tail surfaces. Powered by a 65 hp engine. Main features; excellent visibility and good performance.

SECOND  
\$25  
AWARD



Light helicopter by Sam Sakoulas of Kansas City, Mo. Just the thing for suburban commuting, if and when we have heliports on roofs. Small enough to take off from the front lawn. The "Flying Egg" carries two. The engine is located in the top part of the egg. Tail boom folds upwards to save storing space. Visibility is poor, non-existent toward back and upwards, and leg room in cabin is extremely limited. General idea, though, is good.

THIRD  
\$10  
AWARD



Rules governing this "aircraft of the future" competition are as follows: Three-view sketches of the envisioned aircraft will be required. These should be not less than 8½ x 11 inches for the entire three views. Give sketches of the complete airplane or space craft in three-quarter front and rear positions. Photos of a model of the proposed design may be included: Informa-

tion on the powerplant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The design may be of any type; space craft, commercial, military planes (fighters, bombers, troop transports), planes for the private flyer and sporting

or racing planes. The entry each month judged the most practical or of the greatest significance will receive an award of \$50; \$25 for second place and \$10 for third. Mail entries to Airmen of Vision, c/o Air Trails HOBBIERS for Young Men, 304 E. 43th St., New York 17, N.Y. The editors regret they cannot enter into any correspondence on submissions.



## An Advanced Project for Model Boat Fans!

Walter Musciano, famous scale model man who worked on design of real LCU, brings you one of the very finest R/C boats (30"l) to grace our pages. There's lots of space for equipment!



Radio Controlled

# Landing Craft

By WALTER A. MUSCIANO



■ World War II proved the value of the landing craft during the numerous Pacific Island landings as well as in the Normandy invasion of Europe. To classify all vessels capable of riding up onto the beach as landing craft is, perhaps, a bit erroneous because some of the larger varieties (LST, Landing Ship, Tank and LSI, Landing Ship, Infantry) are constructed as large as 350 feet long and are capable of trans-oceanic travel. These are definitely "ships." On the other hand some invasion vessels are as small as 36 feet in overall length (LCVP, Landing Craft, Vehicle and Personnel).

These two extreme examples are employed during many different occasions but not necessarily at the same time, together. One type of invasion vessel, however, that is almost certain to be employed at virtually every type of invasion is the Landing Craft, Tank (LCT) or Landing Craft, Utility (LCU) as the latest types are called. The flat-bottom, slab-sided Landing Craft, Utility are the newest addition to the U.S. Navy and U.S. Army invasion fleets, having been completed in 1954. Capable of carrying tanks or other vehicles on deck, these craft can also land troops, if necessary, from the open deck. A huge drawbridge-like ramp forms the scow-shaped bow over which the invaders are loaded and discharged.

These Landing Craft are fairly sizable, with a length of 115 ft. and a beam of 34 ft. Several vehicles can be accommodated depending, of course, upon their size. Anything from small jeeps and trucks to the largest tanks, gun carriers, or tank retrievers can be transported by these craft which are manned by a complement of fourteen men including two

Chief Petty Officers.

Three General Motors diesel engines propel the Landing Craft, Utility through triple screws. Two diesel generators produce electric power in separate watertight compartments.

The stern anchor is a very important part of the operation of landing craft. As the craft begins its approach to the beach the anchor is dropped and the line played out. After the mission is completed and the ramp raised the problem is to remove the craft from the beach. In the majority of cases the propellers cannot do this, so the gasoline-engine-powered winch on deck begins to haul in on the stern anchor line. Since the anchor has a firm grip on the ocean floor, the action of the winch actually pulls the craft off the beach, after which the anchor is hauled into the stern rack and the craft proceeds under normal power. Should the anchor become caught on a coral reef or other obstruction the line is immediately cut and the spare anchor is attached to a new line.

This description is especially for the radio-control enthusiast who may desire to construct a truly realistic operating model of this landing craft. It certainly is not beyond possibility that a model can be made to drop anchor, beach itself, open the ramp, close the ramp, haul in the anchor line and then return to the operator. Beyond a doubt the landing craft is ideally suited for radio work whether it be merely a simple single channel rudder operating mechanism or a complex hookup to achieve the action described above.

Plans for these triple screw craft were prepared for the U.S. Navy by George G. Sharp, Inc., one of the leading ship

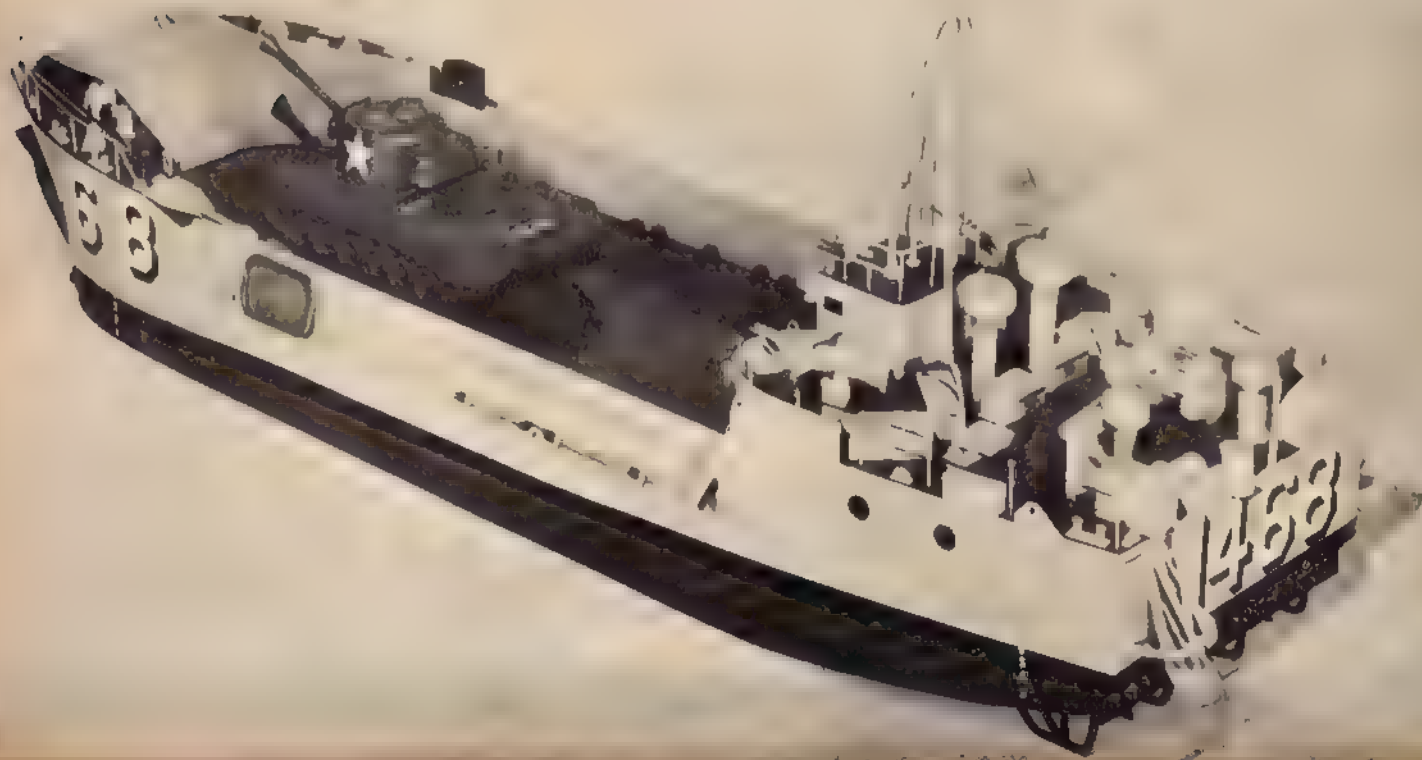
designing firms of the U.S. The author, as a member of the Design Staff of this firm for fifteen years, did a considerable amount of design plan work on these craft. The model plans presented here are, therefore, most accurate except in those cases where security restrictions prohibit divulging certain features.

Our replica of this interesting craft is powered by three electric motors to duplicate the triple screws of the full-size vessel. The motors can be either of the smaller variety such as Dyna-Mite, Ray-O-Vac, Wilsons, the German Distal or the larger more powerful K&O or Pittman motors. The entire propeller assembly including shaft, brass tube and rubber universal may be purchased as a complete set called the "Scientific Marine Unit" marketed by the Scientific Model Airplane Co.

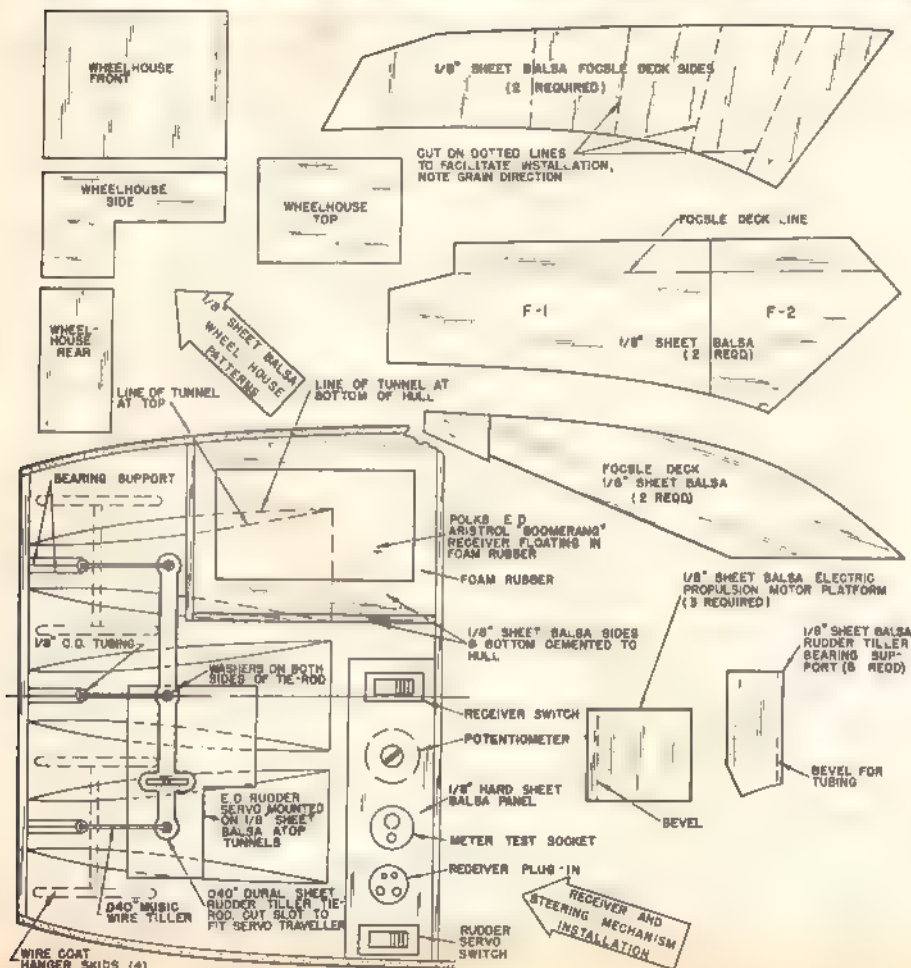
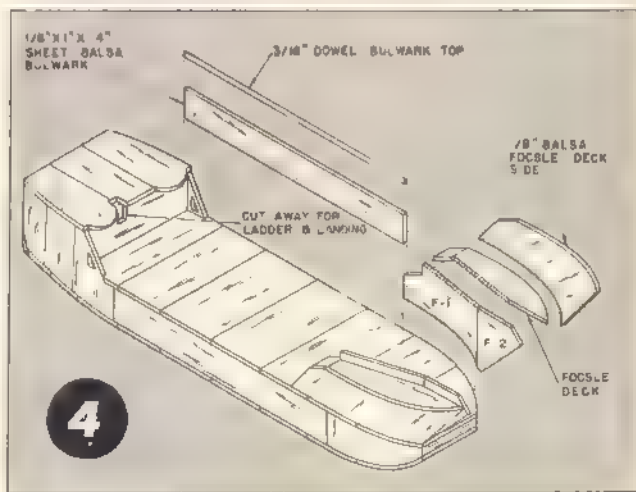
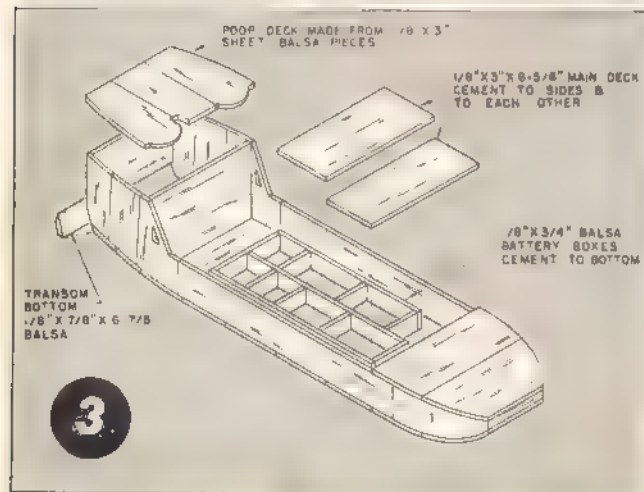
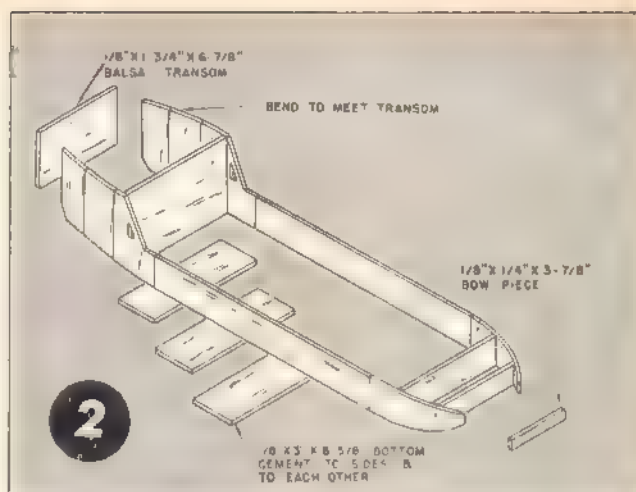
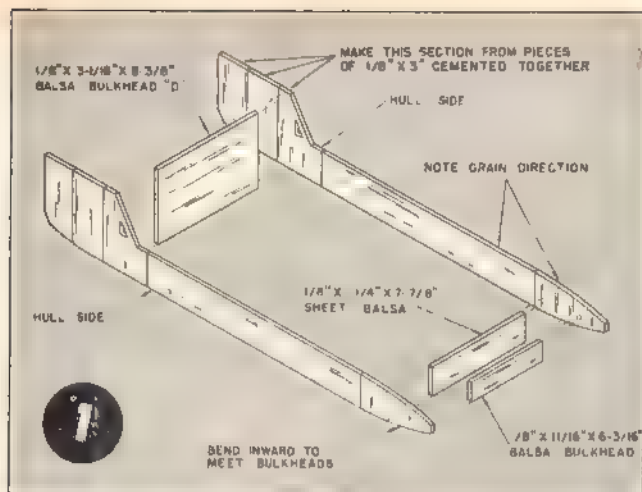
An E.D. Boomerang Radio Transmitter and Receiver were used for our craft in conjunction with an E.D. Rudder Servo. This servo affords true proportional rudder control instead of the sequence operation of the average escapement type of control. A Rip Max Beep Box is used to actuate the servo. The components are available from Polk's Model Craft Hobbies in New York City.

The prototype model is constructed entirely from  $\frac{1}{8}$ " sheet and is built to the scale of  $\frac{1}{4}$ " equals one foot. The majority of deck fittings, anchors, ladders, davits, port holes, bitts, chocks, chain, stanchions and numerous other detail items can be purchased at many model supply houses.

The ramp on the model can be remotely operated via radio equipment on which is fitted a second control such as the Fenners-Pike Servo Mechanism. In







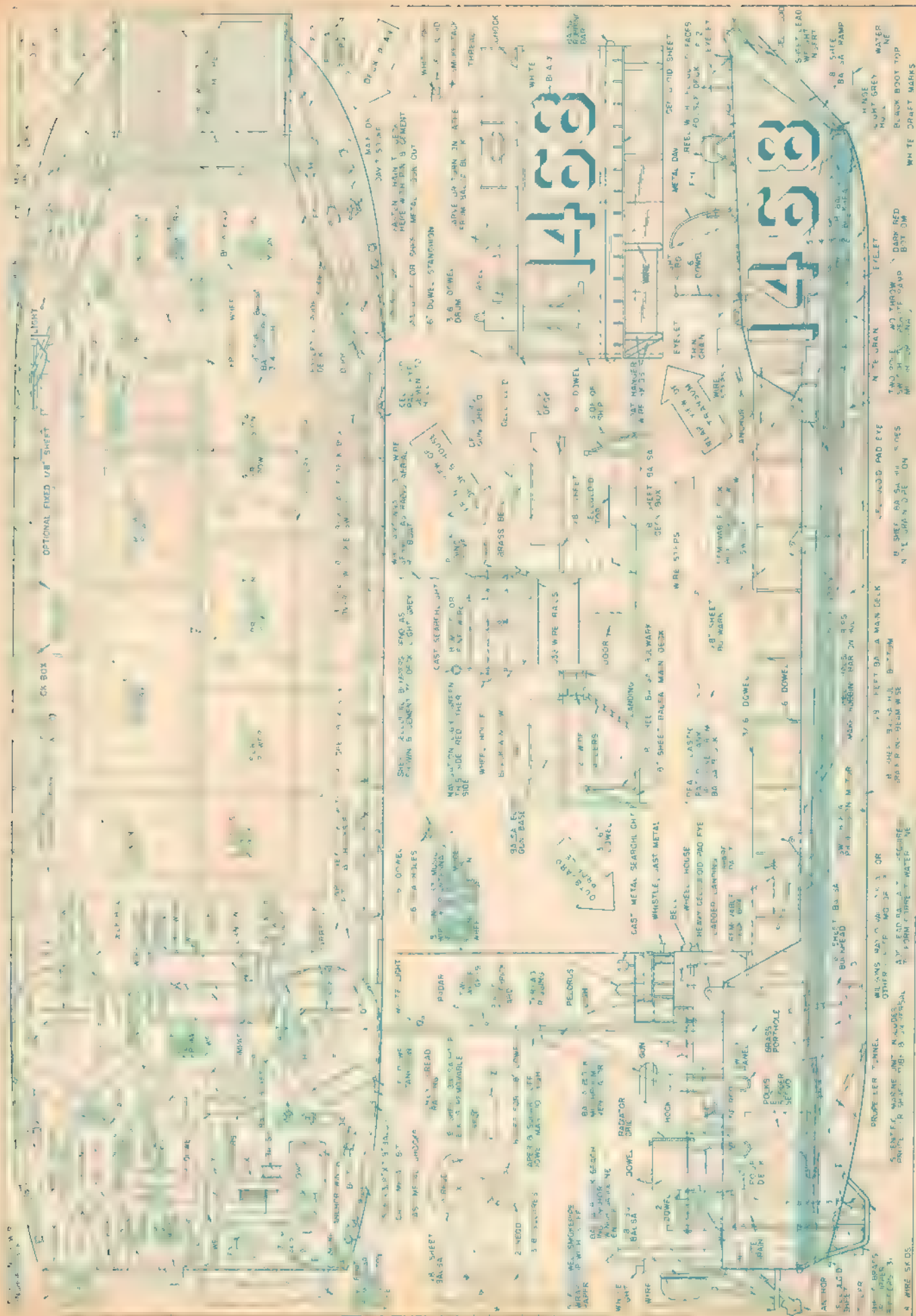
this way the model can be beached and the ramp opened remotely. The more enterprising radio fan could fit ratchet relays to reverse the current to the motors and thereby pull the craft off the beach after the ramp is closed by the same method. Our model does not have a remotely operated ramp; instead the ramp operates electrically via a double pole-double throw switch hidden on the hull. A small electric motor drives a reduction gear via a friction drive. The gear was taken from a very small inertia type toy truck. A rubber tube is forced onto the motor shaft and this is fitted against the large inertia wheel of the inertia type motor in order to afford a further speed reduction.

We wish to thank Nicolaus Bruns of the U.S. Navy for contributing numerous photographs of the full-scale craft which helped us construct a most accurate model.

**The concluding installment on this R C Landing Craft will appear in next issue.**

Full-size plans for Musciano's LCU are a part of Group Plan No. 855 available from Hobby Helpers, 770 Hunts Point Ave., N. Y. C. 59 (50c).





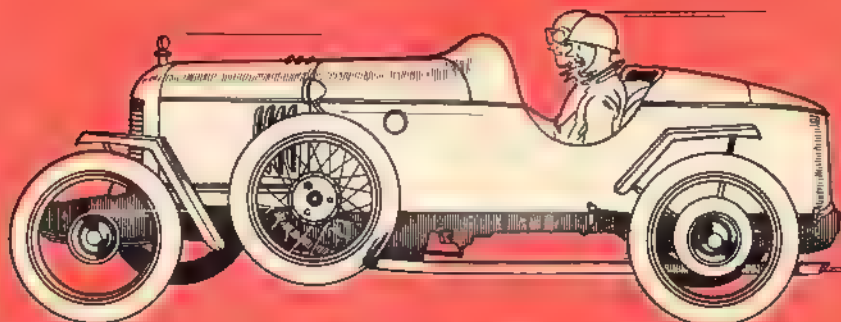


# AUTO Progress

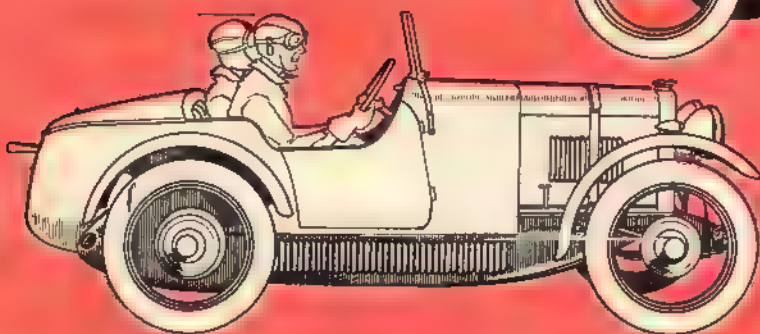
By DOUGLAS ROLFE

## Famous Sports Cars

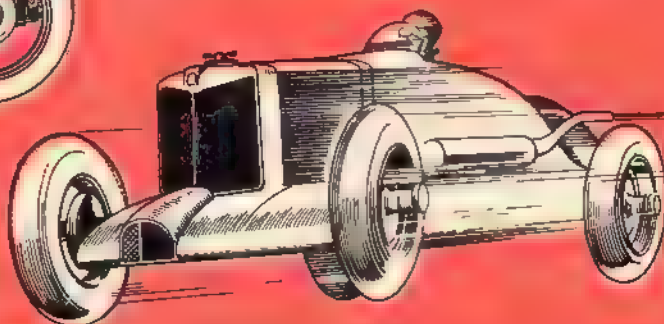
The saga of a car that started as a "hot rod" and through merit became sweetheart of sports drivers



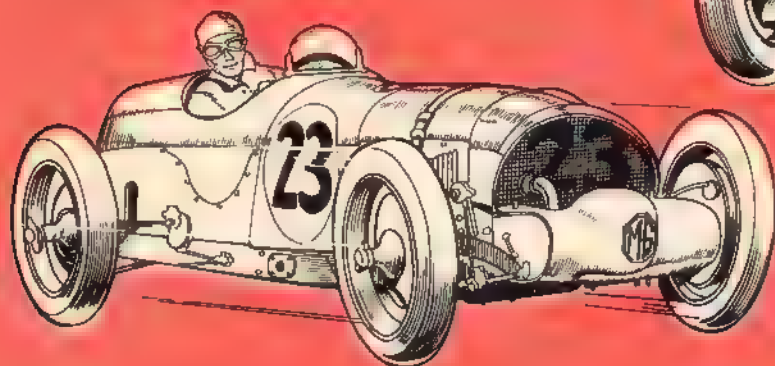
The first MG was actually an early "hot rod," a 1923 hand-made conversion of the popular Morris-Oxford car fitted with a modified Hothkiss engine equipped with overhead valves. With its light body and wire wheels and stark exterior it was capable of better than 75 mph.



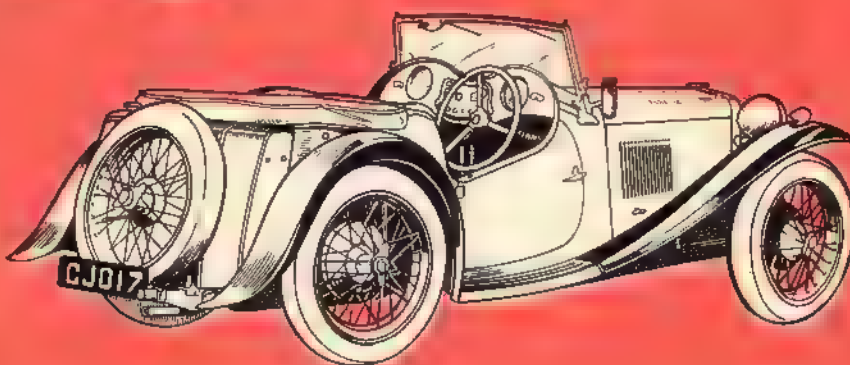
First production MG came out in 1929. Known as Model M it was an immediate success and the first of the long line of MG's to race. The powerplant, an overhead camshaft conversion of Morris Minor engine, developed 20 hp at 4400 rpm.



Special MG's, both blown and unsupercharged, swept the field in top racing events from 1931 to 1935 as well as established numerous straight-away speed records in small displacement classes. MG was first light car to reach a speed of 100 mph, achieved in 1931. Shown above, Model "Q" racer; left, EX 135.



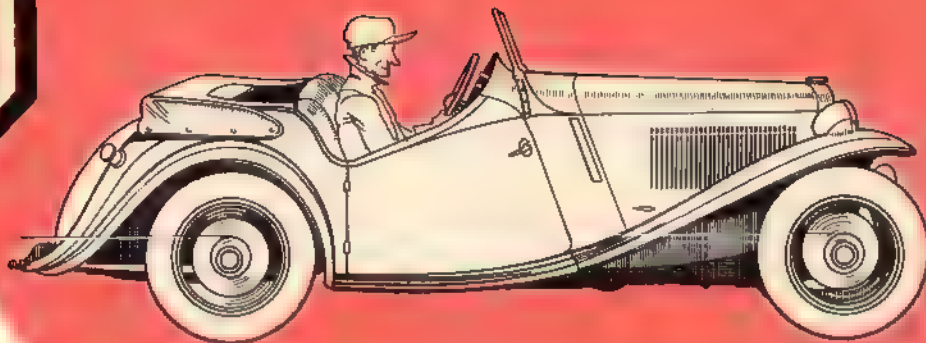
The "T" series Midgets came out in 1936. They had a larger capacity powerplant, and the overhead camshaft was abandoned in favor of the pushrod valve mechanism. Top speed was 85 mph. The "T's" were the real progenitors of today's MG's, which still retain their famous square lines and slab-tank.



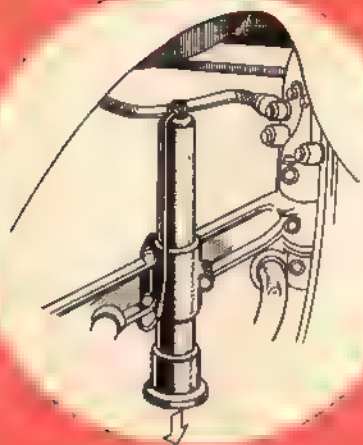
The remarkable popularity of sports cars today and the addiction of fans to foreign makes can be traced to the success of the little precision-built MG's which invaded this country shortly after World War II. Actually they had been marketed here about 20 years before, but never really caught on. Now,

there are, MG clubs all over the land. The cryptic initials "MG" stand for "Morris Garages," at one time a division of the Morris Company. Cecil Kimber, general manager of Morris Garages, built the first model, in 1927. A hand-built job, this was nothing more than a converted standard Morris-Oxford

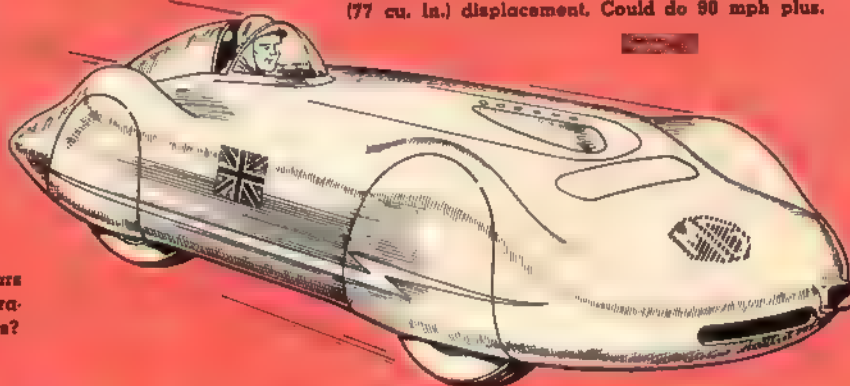




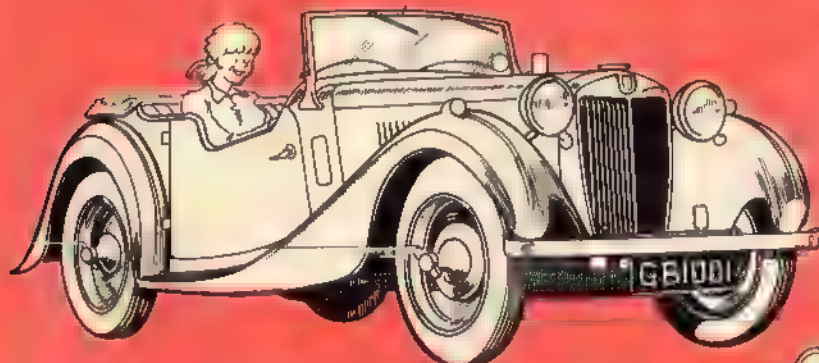
The six-cylinder Magnette appeared in 1934. The Model N, shown here, was powered by an overhead camshaft engine of 1271 cubic centimeters (77 cu. in.) displacement. Could do 90 mph plus.



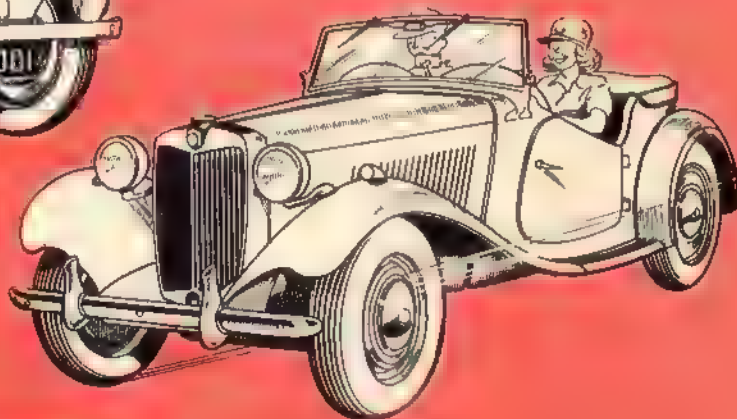
Pushbutton jacking was adopted some twenty years ago, with hydraulic jacks on all four wheels, operated from dash-board. Good idea for today's cars?



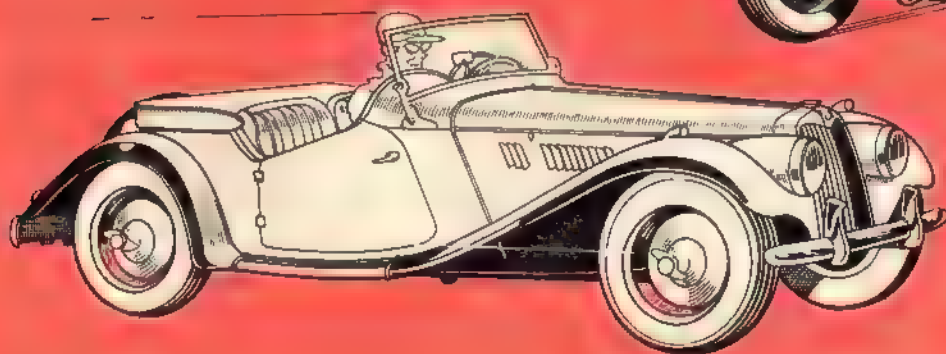
MG EX 135 in streamline dress. The car, powered by a six cylinder, 1100 c.c. (66 cu. in.) engine, about the displacement of a motorcycle, attained a speed of over 200 mph, driven by Goldie Gardner, in Germany in 1938.



MG-VA, 1½ litre (90 cu. in.) open tourer came out in 1939. With the exception of a four-place body and skirted front fenders, it had little to distinguish itself from previous models. 55 hp engine.



Greatest change undergone by the MG was on the TD series brought out in 1950. Car had smaller diameter, disk wheels, independent front suspension, but still the same sassy look.



Model TF appeared in 1954 looking somewhat more streamlined than its older sisters. In 1955, the TF was further improved by fitting it with a bigger, 1500 cc. engine.

light car. By 1927 the demand for these conversions forced Morris to bring out a production model, and thus the present MG was born. The ensuing years have seen a bewildering number of models—the Midgets, Magnas, Magnettes, 1½ and 2-litres and special racing jobs, not to count an entire alphabet

of designations such as J, PB, N, VA, etc. Except for the racers, all MG models have looked singularly alike, but there have been many improvements and refinements on the basic design and the present-day MG is a little gem which shows its pedigree and still manages to maintain a top position in its field.



# TUNING UP FOR WINNING SPEEDS



By ROBERT J. MOH

**Do you have to be a wealthy machine shop genius to win at model car racing? Absolutely not, says author.**

■ In our previous article we covered the fine points of engine maintenance, ignition systems, gear box and tires and the fuel feed system. Now let's wind this report up with some straight talk on the three remaining phases of tune-up.

First—FUEL. Not bragging, but we've nosed around considerably in colleges, had professors scratch their heads, but the old "trial and error" or "mix and stand back" way was the one at which we finally arrived. No one I know can positively say one ounce of this plus four of that will be "it." A super fuel may fall flat on a humid day. A mild mixture will be consistent but you'll get

"dusted off" by one of the super fuel boys on an ideal day.

Basic ingredients are castor oil, alcohol, nitro methane and oil of merbane. I've heard of some pretty wild concoctions with just these few things but you'll do better in the long run sticking to a 3 parts volatile, 1 part castor oil ratio with about 40% of the total (3 plus 1) making up the nitro methane department. No one agrees why oil of merbane is added but it sure smells impressive. The boys usually add 5 or 10% of this. Alky makes up the rest of the volatile part.

Keep your fuel clean and in small-

necked, brown, gallon bottles, to avoid evaporation and rust.

If you really want to simplify things do what those record breakers down Texas way are doing. Use a commercial fuel. Their local stuff is Glenn Fairbend's "This Is It."

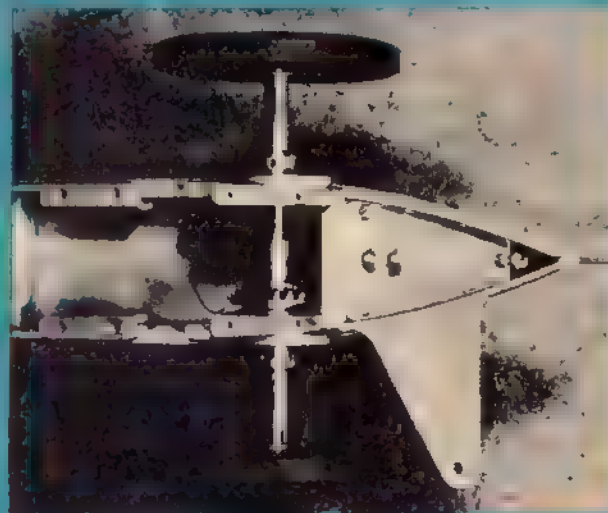
## BRIDLING

This is a ticklish proposition. When you think you've got a car bridled, let it alone. Bridling affects feeding and track holding (traction). Turning a car in a few degrees will richen the engine, causing it to peak much later. Incidentally, this is another way to cure a chronically lean running car. Too much turn-in or turn-out can cause loss of traction. When the car is hung by the bridle with tank empty it should be horizontal or turned in just a bit. Transcribed to the rear axle, this should be vertical or steered in just a bit. Only running will tell you which drive wheel is doing the most. The outside tire should be the warmer of the two after a run. The difference should not be extreme. Either bend the panhandle to suit (always remove from car and use heavy tools), or if yours is a two-lug car, raise or lower the rear suspension point by adding or removing washers. If traction still remains poor do as I suggested in the section on tires. Add up to 5 oz. of lead to the rear end but keep it as close to the rear axle as possible. Find the proper amount through experimentation, and then you will probably have to re-bridle.

The front wheels should have no toe-in or toe-out. Line up the front wheels to match the back so that when off the cable and on the level, the car rolls straight ahead.

## OPERATING AND MISCELLANEOUS

Practice-run your car a lot. You'll  
(Continued on page 86)







# How to Restore Antique Pistols

By J. M. TRIGGS

■ One of the first things a fellow thinks of when he finds himself in possession of an old pistol is to shine it up right away. Caution! go slow!

If your gun has any value at all, that value by a collector's standards depends on its mechanical condition and the amount of original finish remaining. The quickest way to ruin a fine old gun is to scrape away with sandpaper or, as I have seen done, to attack the rust vigorously with a file. Let's find out how to restore an old gun properly, enhancing both its appearance and its value.

The gun I have used to illustrate the process is a Remington New Model Police Revolver which was made around 1880. This little piece was found in an attic, mechanically sound but in a badly rusted condition. It is now part of the arms collection of Col. H. B. Livesey, Jr. of Mamaroneck, N. Y.

Our first step is to make sure that the gun is not loaded. Since the little Remington is a cartridge conversion arm, we can simply look through the chambers to determine this. In the case of a muzzle-loading single-shot pistol a rod or stick must first be inserted in the barrel as far as it will go and then marked at the point where it emerges from the muzzle. The rod is then withdrawn and laid alongside the barrel with the mark still even with the muzzle. If the end of the rod is more than a fraction of an inch forward of the nipple, you can be pretty sure that there is either a load down or some obstruction in the bore. If this is true, the breech-plug must be removed and the obstruction driven out with a ramrod.

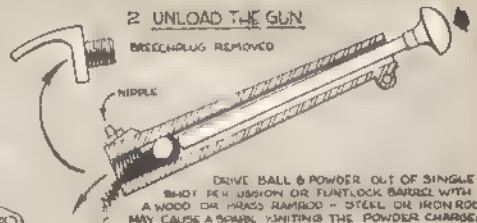
A load in the chamber of a percussion revolver can usually be seen readily. The ball or bullet in such a chamber can be withdrawn with a large wood-screw. The load can then be picked out gently, preferably with a small wooden stick. Always be sure that there are no percussion caps in place on nipples before attempting to unload a gun. Remove caps very carefully.

Next, we remove the wooden grips from our pistol and put them aside for the moment. Soak the entire gun in a good grade of penetrating oil for at least 24 hours. Kerosene has a tendency to form rust, so avoid using it on a gun. The penetrating oil will loosen up tight



## 1 MATERIALS

PENETRATING & GUN OILS, FINE STEEL WOOL, UNSOILED OIL, RAGS, CLEANING ROD, PATCHES, A FEW 22 CAL. BRASS BRUSHES, A FIBER OR WOOD TIPPED HAMMER AND SCREWDRIVERS



## 2 UNLOAD THE GUN

BREECHPLUG REMOVED

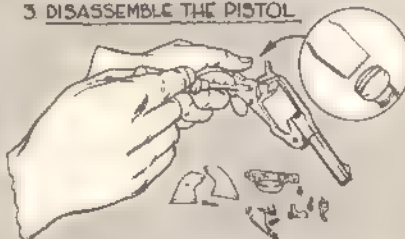
DRIVE BALL & POWDER OUT OF SINGLE SHOT OR FLINTLOCK BARREL WITH A WOOD OR BRASS RAMROD - STEEL OR IRON ROD MAY CAUSE A SPARK IGNITING THE POWDER CHARGE!



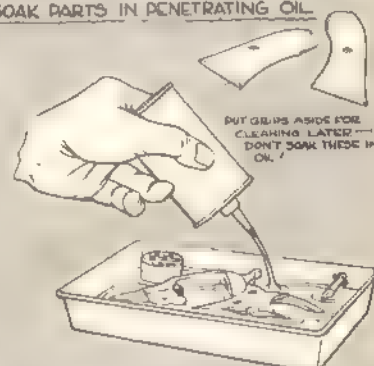
REMOVE CAPS CAREFULLY!

A LARGE WOOD SCREW MAY BE DRIVEN INTO A LEAD BALL, MAKING IT EASY TO REMOVE IT FROM A PERCUSSION CYLINDER

## 3 DISASSEMBLE THE PISTOL



BE SURE TO USE A SCREWDRIVER WHICH FITS THE SCREWS. KEEP PARTS AND SCREWS IN ORDER. AS YOU REMOVE THEM FROM THE PISTOL TO FACILITATE REASSEMBLY



## 4. SOAK PARTS IN PENETRATING OIL

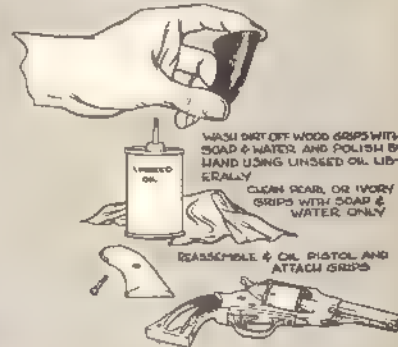
PUT GRIPS ASIDE FOR CLEANING LATER - DON'T SOAK THESE IN OIL!

## 5. POLISH ALL PARTS

USE ONLY THE FINEST GRADES OF STEEL WOOL



A 22 CAL. BRASS BRUSH AND AN OLD TOOTHBRUSH ARE HANDY FOR CLEANING OUT SCREW HOLES & HARD TO GET AT PLACES



WASH DIRT OFF WOOD GRIPS WITH SOAP & WATER, AND POLISH BY HAND USING UNSOILED OIL LIBERALLY

CLEAN PEARL OR IVORY GRIPS WITH SOAP & WATER ONLY

REASSEMBLE & OIL PISTOL AND ATTACH GRIPS

DO NOT ATTEMPT TO SHOOT AN OLD FLINTLOCK, OR PERCUSSION PISTOL UNTIL THE GUN HAS BEEN FOUND SAFE BY A COMPETENT GUNSMITH. ALSO, ADVICE FROM AN EXPERIENCED MUZZLE-LOADING SHOOTER WILL HELP. COMPLY WITH LOCAL PISTOL LAWS.

(Continued on page 73)



# SCHOOL FOR YOUNG YACHTSMEN



Ordered to unangle a twisted halyard, young sailor shimmies up mainmast as part of his course in boatmanship.



Becalmed sailors use old superstition of early sailing days, "bailing for the wind," to entice a breeze.



One of the 16-foot sloops, with future yachtsmen aboard, is towed out of the club's basin bound for the sound. All six boats are towed in line astern by one motorboat.



With sails furled and anchor down to prevent boat from drifting, youngsters dive overboard for swim before lunch.



Under full sail. Experience gained by youthful crews will serve them in good stead when they become full-fledged yachtsmen.

■ Some lucky young fellows live near the Cedar Point Yacht Club at Westport, Conn. Four days a week, weather permitting, they set out in six Cape Cod Knockabout sloops toward Long Island Sound for a day of sailing under the supervision of three senior yachtsmen who act as instructors. There the youthful salts, ranging in age between 11 and 15, are indoctrinated in the arts and skills of manning a sailing vessel in preparation for the day when they will be old enough to take their place among the adult members of the club. From 10 a.m. to 4 p.m. they are taught seamanship, navigation, rules of the "road," care and handling of the boat. But all is not work and study—time is taken out for fun heralded by the traditional shout "Last man is a sissy!" as the "students" dive overboard for a refreshing swim. Upon returning to the club's dock, there are mooring and docking exercises, sails to be washed and dried, and sloops to be "decommissioned" for the night. A busy day but a mighty enjoyable one!

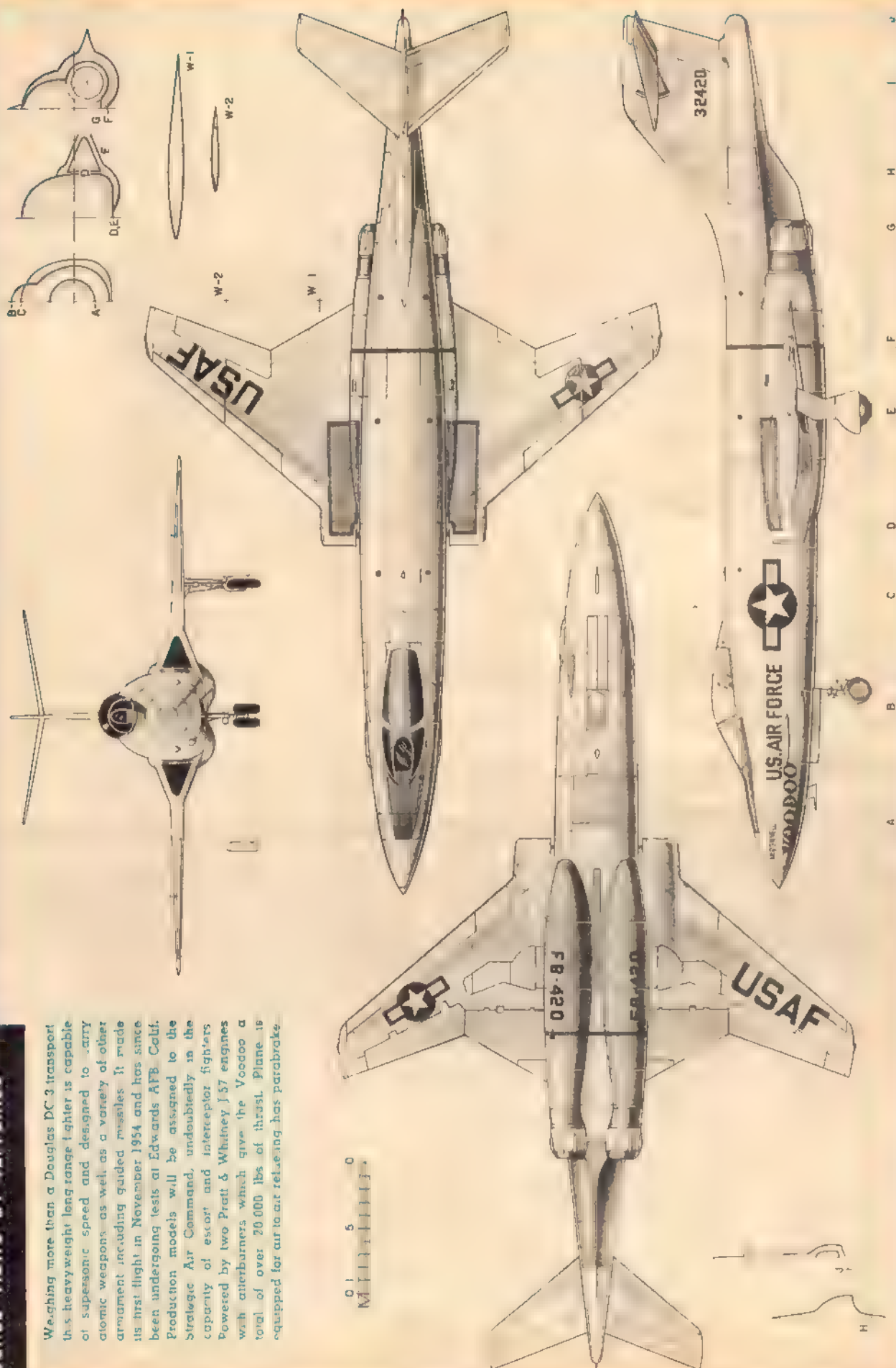
Bound for home after a full day of sailing. But there is still work to be done before calling quits. Part of the curriculum includes tactics and technique of sailboat racing.





## SCALE VIEWS BY JEFFERIES

Weighing more than a Douglas DC 3 transport this heavyweight long range fighter is capable of supersonic speed and designed to carry atomic weapons as well as a variety of other armament including guided missiles. It made its first flight in November 1954 and has since been undergoing tests at Edwards AFB, Calif. Production models will be assigned to the Strategic Air Command, undoubtedly in the capacity of escort and interceptor fighters. Powered by two Pratt & Whitney J57 engines with afterburners which give the Voodoo a total of over 20,000 lbs. of thrust. Plane is equipped for air to air refueling has parachute

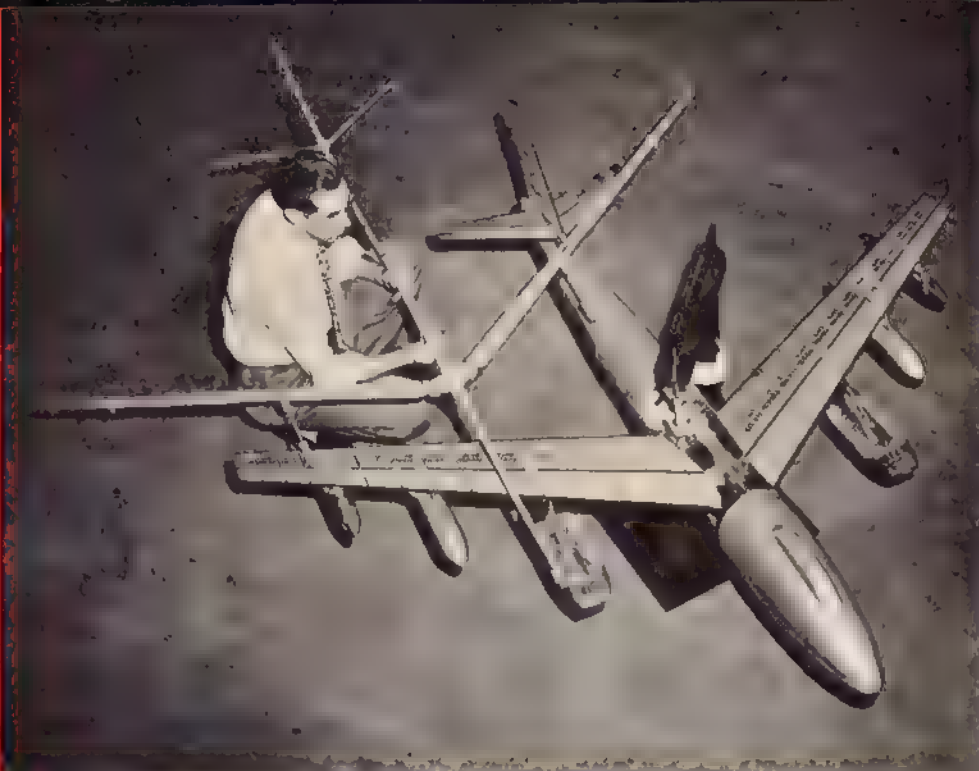


# McDONNELL F-101 Voodoo



# Engineering Jobs in the Aviation Industry

BY ONE PERSON



**DID YOU KNOW . . .** U.S. can be crossed in "zero" minutes? Today's aircraft can stay aloft for days? That engineers are now constructing wind tunnels to test aircraft at speeds of "thousands of miles per hour"—not hundreds? that the average aircraft speed increase per year since WW II has been 165 miles per hour? That the engines of a modern heavy bomber are more powerful than the engines of the largest battleship of WW II?

**AND . . .** Did you know that the aircraft industry is the largest in the world and presents the most spectacular opportunities for careers ever offered to young men at any time in history?

**Yes, this aviation industry born only fifty years ago is an industry for young men—** with young and bold ideas. If you feel that you would like to do something new, something different, read this article about the opportunities in aviation of today—and tomorrow!

■ Today aviation is the world's largest industry, in wages and production! Nosing out the automotive industry in January of 1954, it became the nation's leading employer, with 828,200 employees. Since then it has considerably upped that total, and prospects for the future indicate it will maintain its leadership in manpower. Wages? . . . In 1954 the average annual wage paid the aircraft worker (\$4,420) surpassed that of the automotive worker (\$4,108). We will discuss the salaries for engineering jobs today as we come to them, but it may be stated that as a rule the aircraft employee's wages rise almost 3% faster than those of employees of all other manufacturing industries.

Let's look at the *kinds* of jobs. In 1939 the U.S. Department of Labor's "Directory of Occupational Titles" listed only 34 occupations for the entire aircraft industry. Today this figure stands at 653, with more than 44 major engineering classifications alone!

Just why has all this happened? The answer is simple—today's aircraft fly faster, higher and farther than was dreamed possible before the war. For example, a current experimental aircraft, the Bell X-1A, flew 1650 mph in level flight and reached a reported altitude of 90,000 feet plus. Today's airplanes are just more complex machines, requiring more work in every stage of design, construction, maintenance and opera-

tion. It takes from seven to ten years to create a modern aircraft from design to production. One modern bomber will require as much as 8,000,000 design hours.

All of which means that golden opportunity lies ahead for you in the aircraft industry. You, the engineer of tomorrow—meaning practically every branch of engineering—will find all kinds of career futures waiting for you in this field. The current shortage of engineers, which will continue for some years, will be a contributing factor, and so will the constant development of aviation.

But let's get down to cases. Let's take a tour through a typical aircraft manufacturing plant—all the way from original design to final delivery. There are many and diversified opportunities for you at this plant. To point them out more clearly, we will divide our trip into two phases: Phase One—Design, Testing and Acceptance; Phase Two—Production, Delivery and Service. Although our tour will cover the design of aircraft, bear in mind that the same basic steps are used in all phases of aviation including powerplants, accessories and missiles.

The author is Assistant to the Dean, Parks College of Aeronautical Technology of Saint Louis University, a member of the Board of Directors of the National Aviation Education Council and a member of the Aviation Writers Association.

**PRELIMINARY DESIGN.** As we start our tour, let's check the chart of Phase One. You'll see that the section titled "Preliminary Design" has five co-sections, namely: Aerodynamics, Wind Tunnel, Research, Structures and Mathematical Analysis. These five co-sections work very closely with the men in Preliminary Design, as you will see when we visit each group.

Engineers design aircraft with three general thoughts in mind:

1. To sell a prospective customer who is in the market for a plane and who has given them specifications as to performance, size, weight, etc., which must be met.
2. To attempt to interest a customer in a design, even though the customer may not be in the market for the plane.
3. To develop an entirely new concept of aircraft, hoping to create new markets.

No matter what the reason may be, the planes of tomorrow take shape in Preliminary Design. This is the place for you if you are a practical dreamer. Imaginations run wild, but ideas are tempered with slide rules, mathematics, drawings, forecasts, scientific knowledge—and costs! These are the men who are working right now on tomorrow's fighters, bombers, transports, guided missiles—and space ships. These are the practical dreamers who demand new materials

Boeing Airplane Company wind tunnel engineer (left) holds spar assembly which forms the skeleton of .075-scale balsa and plastic Boeing B-47 Stratojet wind tunnel flutter model similar to one shown. Model weighs 33 lbs.

and engineering processes from American industry in order that their ideas may become a reality.

Industry tries to fulfill the demands and many times the American public benefits in unexpected ways. For example, an electronic device, originally designed and developed for use in a guided missile, has found its way into a new and much more efficient hearing aid! Every major aircraft company has a Preliminary Design department and one of them actually calls these men "the thinkers"—with a "Vice-President in Charge of Ideas." Salaries range from \$7800 to \$19,200 annually.

The Preliminary Design engineers recognize no frontiers—their eyes are on the far-flung wings of the future. Today's speed, altitude and payload limits belong to the aeronautical past as our practical dreamers plan now for tomorrow—making today's planes obsolete before they even reach the final production stage.

Preliminary Design requires the combined efforts of many engineers—including aeronautical, electrical, electronic, astrophysical, hydraulic, mechanical, civil, servo, acoustical, metallurgical—just to name a few. All these classifications draw heavily on the efforts and findings of the scientists who work in the laboratories and in the general fields of physics, chemistry and applied mathematics.

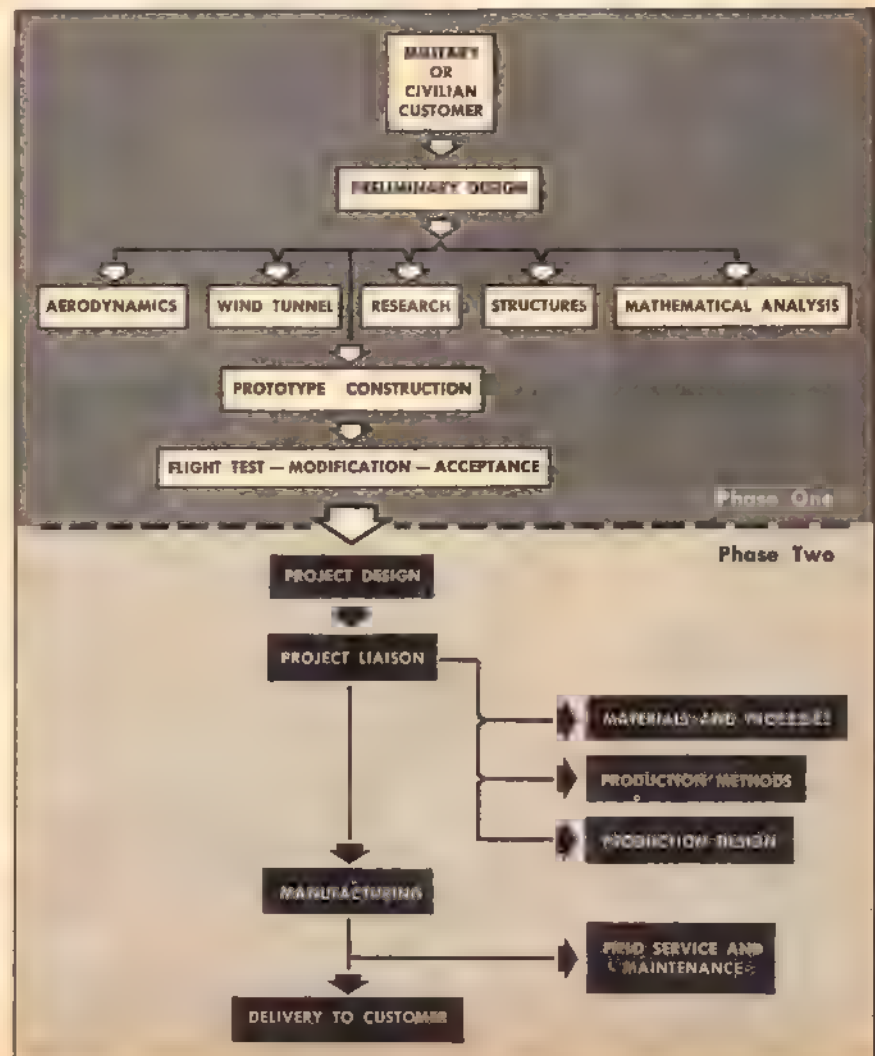
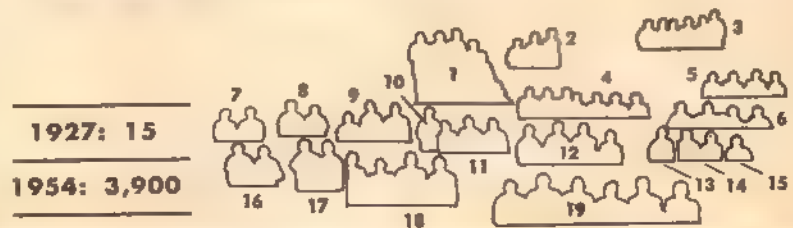
Now you can see why your high school counselor was so insistent on your taking these courses in your program—they are the basic tools of Preliminary Design. An engineer, especially in Preliminary Design, is actually an applied scientist skilled in the application of the fundamental laws of nature. Since Preliminary Design is composed of highly experienced and versatile engineers, college graduates do not enter this section directly. However, after proving yourself in other sections, you may expect advancement to this section if you wish.

(Continued on Page 87)

Article tells significance of chart (right). World's first fully remote control helicopter in flight (below). Developed by Kaman Aircraft Corp. for Navy. R/C job flies with safety pilot aboard; he does not handle controls at all.



DEMAND FOR ENGINEERS is evidenced by this Lockheed Aircraft Corp. photo. Each man here represents a different engineering category necessary to develop a modern airplane. In 1927 Lockheed employed 15 engineers to develop the Vega; in '54 3,900 engineers worked on Super Constellation. Groups include 1) fuselage engineering; 2) powerplant; 3) empennage; 4) structures; 5) weight; 6) wing; 7) electrical & radio; 8) controls; 9) landing gear; 10) armament; 11) equipment; 12) hydraulics; 13) specifications; 14) material; 15) coordination; 16) production; 17) testing; 18) flight test; 19) management.





# HOBBY WORLD MODEL

Let's get that tank full  
and away we go! This  
is HQ for model plane,  
car and boat fans. Ten  
bucks for photos used!



## DOPE CAN

■ As you may have noted in the last issue we have more or less taken over another department in this section. We refer to the "Hobby Items In The News" feature which was instituted to bring you the latest inside scoop on new hobby merchandise that might be of some special interest—also sidelights on companies and the model builders who work for 'em. Well, the boss tells us dope from the manufacturers for HIITN is sometimes scanty, sometimes plentiful, so he's gonna pass along incoming material to use and we'll try to work it in here.

(This doesn't mean that you won't find lots of "commercial notes" in the Model Boating and Model Car News

columns; and Mac'll continue to cover new tips in his "Everything Under Control?" department.)

And speaking of incidentals—we wonder how many folks noted the addition of the question mark to "EUC" last month?

**Hobby Items in the News.** Paul K. Guillow, Inc. (Wakefield, Mass.) has a new stunt-combat-sport control line model designed by—who else?—Lou Andrews. It's a real rakish 45" span ship with 435 square inches of wing area. Takes engines from .19 to .36, measures 30" over-all length and has all-up weight of 1.5 lbs. Called Guillow's New Trixy. Sells for \$4.95. Most remarkable are the step-by-step photo instructions; these are about the best we've ever seen in this field.

Herkimer Tool & Model Works (Herkimer, N. Y.) widely known for its extensive line of OK Cub compression-ignition and glow plug engines, has entered the HO-gauge model railroad field in a big way with the introduction of OK Streamline train sets. They offer three completely assembled ready-to-run trains with track, plus an extensive line of finished streamlined cars in eight body types.

The #101 "Commuter" set includes diesel loco, baggage coach and standard coach. With track this sells for \$29.95. #102 "Special" set has this plus more track and an Astradome coach. #103 "Deluxe" set includes foregoing and in

addition a matching diesel unit (non-powered) and an observation car. #102 is \$39.95; #103 is \$49.95.

All cars are designed for easy operation on short-radius curves; they can be added to HO trains of any make. Herkimer also has an OK Power Pack with forward and reverse controls for \$11.95.

Just off the press is a brand-new AHC hobby catalog . . . a lengthy 64-page, 2-color reference guide containing just about everything for the hobbyist. The revised up-to-date edition (A30) includes all the newest model and hobby items—as well as the old stand-bys. Fully illustrated, the catalog gives descriptive info on more than 10,000 hobby items. Included are engines, gas and rubber-powered planes, boats, cars, radio control craft and equipment, solids of all kinds, crafts, tools, pages and pages of accessories, decals, and on and on. Priced at 25c; available from America's Hobby Center, Inc., 152 W. 25th St., New York 1, N. Y.

One of the most unusual, yet simple, items to make its appearance in the hobby market in recent months is Tony Koveleski's "magic spring." More formally this little device is known as Hudson Miniatures' Super Self Starter. Maybe you saw it illustrated in our Hobbies Showcase section last issue. It's one of those why-didn't-I-think-of-it kind of items. Anyway, it's too late for that now—Tony's already applied for a patent. This is a very special type of spring you attach permanently to the front of each of your .049 to .09 engines. Spring stays in place by end which goes around cylinder base or retainer loop. You engage the other curved, free end in prop—rotate prop about 1¼ to 1½ times backwards and—assuming you have the right needle valve setting and proper fuel—when you let go prop spring kicks off the engine just like a car's self-starter!

Shirley Baxter, wife of Wakefield flyer Dick Baxter, is charming size comparison for Walt Mooney's Jetex-powered speedster of 4" span. Topped 60 mph on tether!



Tony asked us to pass along data on the four sizes of springs his S.S.S. comes with. Glad to. Herewith the sizes to choose from: Super Self Starter SS-1—all Thimble Drome engines, SS-2—Wen-Mac .049; OK Cub .049B; OK Cub .049 Diesel; McCoy .049; all Half-A engines with beam mounts, SS-3—K&B .020; OK Cub .049A and .049X; Sky Fury .049; Wasp .049; and Atwood .049 and .051. SS-4—McCoy "9"; McCoy .049 Diesel; OK Club .099; and OK Cub .075 Diesel.

**Well Deserved Honor.** We notice by AMA's "Model Aviation" that the Wakefield model flyers from Grand Rapids, Mich., area bestowed a special "bird dog" trophy on Robert McKeon for the wonderful work he did last year chasing after the big rubber-powered models in the U.S. Semi-Finals. Also noted: Roger Barron, member of the famed "Flying Barron" family of Virginia, won a scholarship to Cambridge University in England.

**Well, Well.** According to the *Evening Star* of Washington, D. C., topnotch flat-race jockey C. M. "Charlie" Cook is an avid control line fan who hopes to give up riding so he can sit down behind a counter in his own hobby shop. And Red Smith, noted sports columnist, reports that Don Cockell, the British heavyweight fighter, maintains his training camp back home in Eastbourne, Sussex, right next to a model plane shop. Anybody see any connection between the two professions?

**Friend From Fiji.** Mark Johnson lives on the Fiji Islands in the South Pacific. Quite keen about model outboard boats. Would like to establish some contacts here in the States. Needs plans of O.B. model boats—can pay off in unusual stamps, real collector's items, also valuable postcards of his area. Mark has been working on our "Racing Raft." How about a couple of correspondents? Write M. J. c/o W. R. Carpenter Co., Ltd., Suva, Fiji Islands, S. Pacific.

**Note of Thanks.** Stanley Taubold writes from Downey, Calif., to tell us he is leaving that state soon (doesn't state why). Before leaving he wanted to write a few lines in praise of his model club, the Long Beach Thunderbugs, a free flight organization.

Incidentally, we don't get many such letters . . .

"The Thunderbugs were brought to my attention by a friend," says Stan.

## Hobbies in Action—\$25 Award Winner!



Fine feeling of real speed is captured here, yet you can still see general outlines of jet-powered speed model. Photo is by David Mathias of Denver; model flown by Lowell Hamilton of Rapid City, S.D. Any type of working model can qualify for this photo competition: give full data on camera, film, exposure, speed, development, etc.

"Having built and flown model planes for 27 years I had known many enthusiasts and been in many clubs—but none was a real championship outfit.

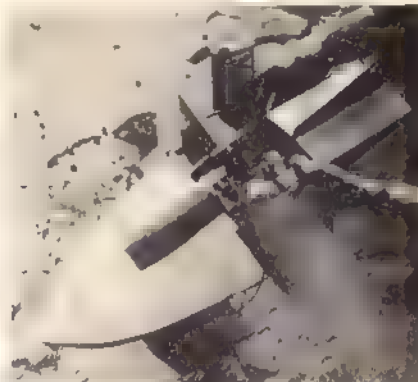
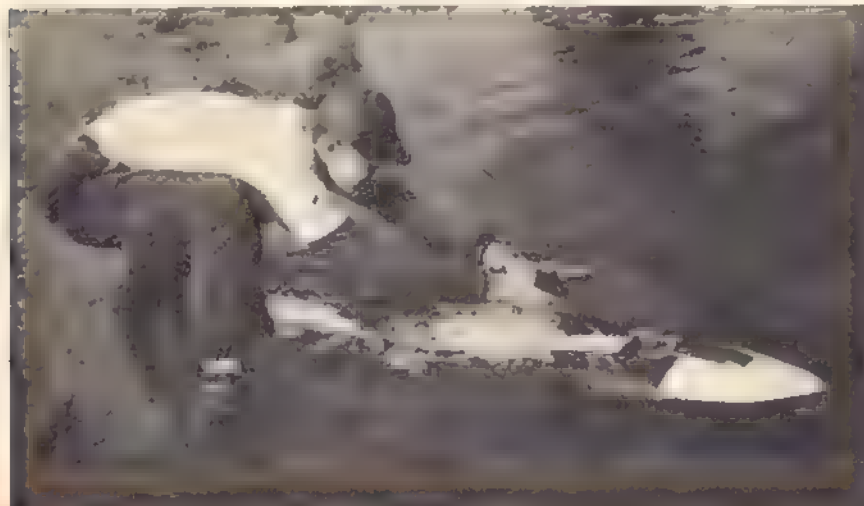
"Imagine my surprise to find that the 'Bugs held 13 national records. And how come? The members had no 'special' engines or fuels, nor did they have factory-made models to fly. No, their models were the same kind that can be found in any hobby shop in any kit. Well, there's a secret to their success—it's team work. This club has a big advantage over most others. Every member will tell anyone who asks anything he can about how to build, adjust and fly a model. This is a club of friends—not rivals. There's no bragging; every member is ready to help when asked.

"That's what makes a club of champions: cooperation, teamwork and persistence. Hats off to the Thunderbugs. Whether he holds a record or not every member acts like a real champion should!"

**Notice to Investors.** If you've got what you consider to be a good invention that would work out to the benefit of the Air Force there's been set up a new system for you to get your proposals where they'll count most. Here's the man to contact: Lt. Col. M. W. Beardsley, Assistant for Innovations, RDTE Hdqts., Air Research and Development Command, USAF, Box 1395, Baltimore 3, Md.

We pass this along since there's always someone trying to get us to evaluate their new project for a missile, engine or something. Try the Colonel, gentlemen. If you've got something good he's got the staff to evaluate your idea—not us.

**Right on the Line.** Parnell Schoenky of the Kirkwood, Mo. Thermaleers noted a brief biography of rocket engine maker Roy Marquardt in *Aviation Week* that did not mention Roy's initial interest in aeronautics as a top-notch model builder. He got off a hot letter which said in



Using a Fox .39 for power, this model of Sio-Mo-Shun V was built by Ronald and Peter Schineller; brother Tom is shown launching. Overall length is 30 inches, speed is 35 mph. O&R 2x2 prop & shaft.



# HOBBY MODEL WORLD



Gear-equipped German rubber-powered Wakefield model by H. Meyer. Span 49 1/2".



German free flight pylon model looks like typical U.S. design. Span 5'; McCoy .19.



Another Meyer Wakefield, 43 1/2" pusher. Prop. 15 3/4"; 18 strands 5/32 rubber.



Magnificent workmanship on Dutch towline glider; few are lost on O.O.S. flights!



Pretty Ann Runge of Higginsville, Mo., with Pappy Paul's "Swanee". Receiver

is 3A5 version of popular Mini-Mac. Looks like a fine spot for R/C boating.

part, and also in detail.

"So many of our outstanding aircraft designers and manufacturers—Donald Douglas, George Page, Stanley Hiller, just to name a few—benefitted from youthful efforts with model aircraft that it would seem as though industry's appreciation and support of this endeavor might be universal, but strange to say, about 97% of our aviation industry chooses to ignore this important phase of aeronautical education.

"What better way is there to guide our youth into aeronautical engineering or trade schools than by helping to expand the instructive, wholesome hobby of model aviation? The air services know its value. When will industry get in stride?"

In case the folks at *Aviation Week* were wondering, Parnell observed that

Frank Vessels (left) with Ed Edmosdon and the plaque which California modelers presented to Mr. Vessels. Inscription reads: "To Frank Vessels, Sr., for his outstanding

he was not in the model airplanes business, but is a mechanical engineer in the flight test department at McDonnell. But Mr. Schoenky has been a modeler for some 24 years and during the past several has done some remarkable things with powered model helicopters including winning the Hiller 'copter event at the Nationals two years in a row.

**Plan of Attack Available.** Waukesha's Wingmen have finally licked their flying site problem. After two years of being shuttled from one city park to another and then being banned from all parks, the W. W. now have under preparation a specially assigned site. The city council has authorized the use of city-owned property at the edge of town, and is spending some \$1,200 to grade and plant the area. This is something the modelers

contribution to the fight against juvenile delinquency by providing a place for young men to pursue the sport of flying model airplanes."





Irv Polk of NYC's model emporium of the same name imported this German Messerschmitt you-name-it. Standard comment by cabbies: "Do you wear it or ride it?"

spent over two years fighting for, and they feel that it has all been worth while. Any group having similar problems who would like an outline of the Wingmen's "plan of attack," can contact Bill Deffner, c/o The Hobby Horse, 839 Gaspar St., Waukesha, Wisc. Club is planning several small local contests for this year and will probably hold a big meet in 1956.

**Astronautics in Idaho.** Boise's Rocket Research Society has been established and would like to hear from similarly-minded rocket fans in the U. S. A. and particularly outside the continental United States. Carl L. Bennett is secretary; he can be reached at 1301 N. 14th St. The BRRS intends to link forces with the American Astronautical Federation soon and recommends that local rocket societies investigate the benefits of affiliation with A.A.F.

**WWII Collector.** "I collect World War II souvenirs," advises James Stanis, 1925 Melrose St., Rockford, Ill. "I specialize in German materials; would like to hear from other collectors who have items to trade or sell."

**2-Line Trainer.** This type of trainer was originated by Jim Walker. Although it is agreed that there is a difference between the feel of whip control and engine-powered flight, the end results are the

## Most Realistic Model—\$25 Award Winner



Charles D. Kishady of Los Angeles put 450 hours into the construction of this inch-to-foot scale model of a covered wagon. Camera was "45" Pace-maker Graphic; pan press film; 1/200 at f/16. Any type of car-boat-plane-train-etc. model can qualify. Be sure to give full photo data with every entry submitted. Indicate "Most Realistic Model" Competition.

same. As both "engine" and pilot, you really control the model more completely than with any other type flying. These drawings are presented in answer to numerous requests from club leaders.

The model used can be most any type as long as it is about 10" wingspan. The entire model can be built in a few hours by the novice, and mainly from scrap material. A piece of  $\frac{1}{8}$ " sheet for the profile fuselage and a sheet of  $\frac{1}{16}$ " sheet for wings and tail surfaces are all that is required in the way of balsa wood. The bellcrank and control horn were made from a piece of Bristol Board. A bit of clay added to the nose substitutes for engine weight and balances the model. A three-foot length of  $\frac{1}{4}$ " dowel or pine will do very nicely for the whip. Bind and cement a wire loop at the tip and also one about halfway down. Any type of handle may be used with Nylon thread

for the control lines. Simply run, the thread through the two loops or guides on the whip to the model. The size of your indoor flying site will dictate the length of line used. With the whip in one hand and the handle in the other, "whip" the model into the air controlling its flight path with the handle only. Under no circumstances use the whip for anything other than motive power. A few level flights to get the feel of things and you can try looping. At this point you will discover how important it is to have the "engine" running smoothly, for your little indoor stunt ship will behave exactly as its full-size counterpart if power drops off—you'll stall out at the top of the loop.

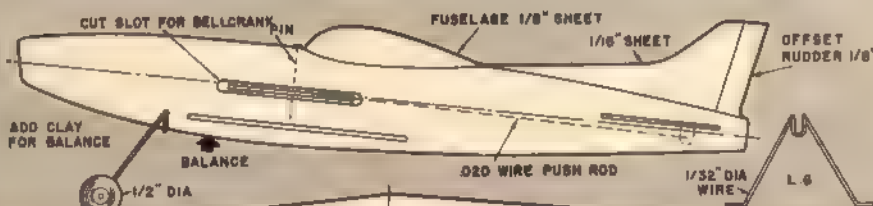
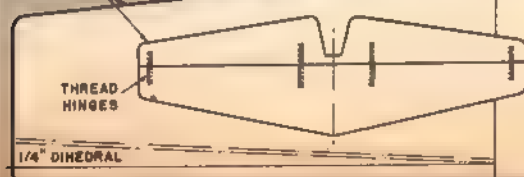
Now learn the fundamentals of inverted flying. You will probably make some mistakes, only you won't wash out your  
(Continued on page 80)

## See WHIP POWER PARLOR TRAINER FOR NOVICE FLYERS

Text  
For  
Details  
PLANS  
ARE  
HALF

1/2"

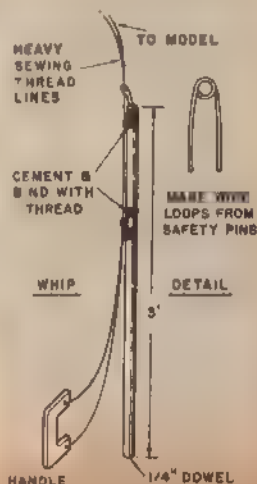
1/16" SHEET



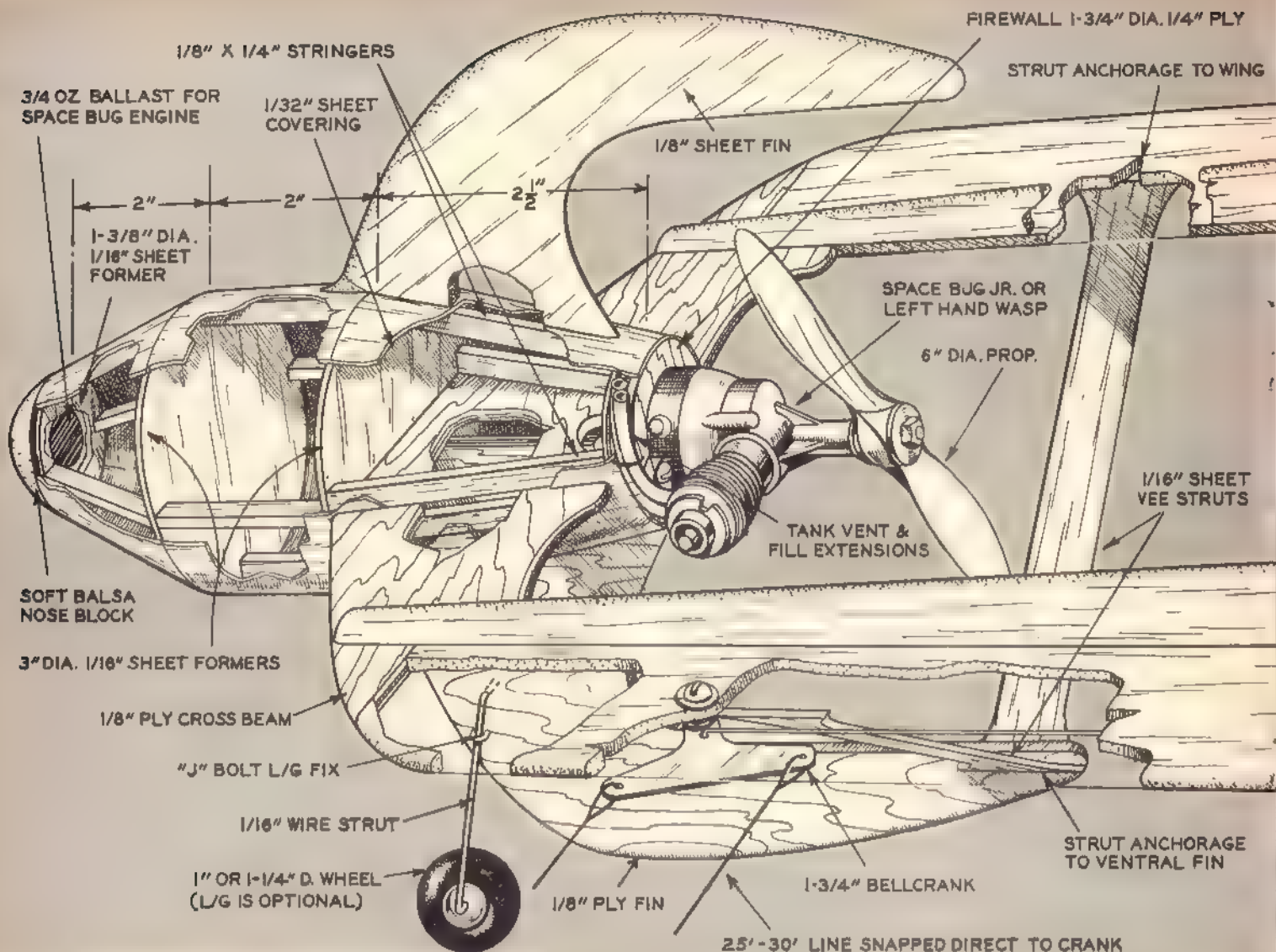
CUT FROM TIN OR STIFF CARDBOARD



LINE GUIDE







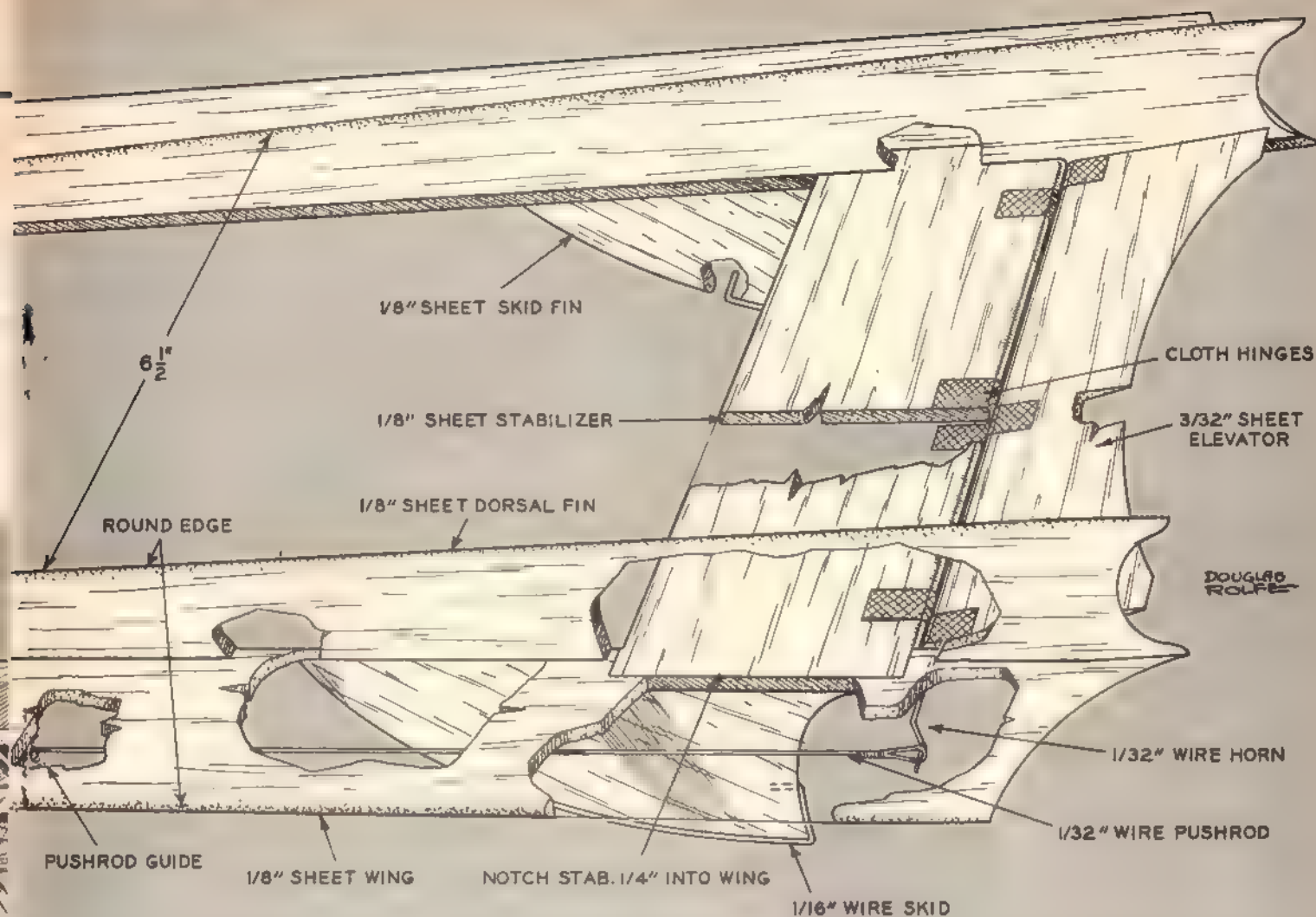
By ROY L. CLOUGH, JR.

# Saturnian

## SPACE SKIMMER

■ This ultra-weird and flashy U-control looks like it just zoomed out of the pages of a science-fiction magazine. A startling eye-catcher, our vane-winged dreamboat has a lot to recommend it besides its unusual looks. It is easy to build, easy to fly and never breaks a prop. Odd as it may seem, lift is excellent despite the unusual fore and aft arrangement of the lifting surfaces. This permits a very good glide and nice handling characteristics. The huge dorsal and ventral fins which flare forth so rakishly are not just decorative—they're functional. They provide lift to hold the model out when flown near the vertical—an idea we may see adapted to future stunt jobs.

The construction, although specialized to fit the unusual geometry, is quite ordinary in method. Start with the cabin or pod,



IMPORTANT/ ZERO ALL SURFACES WITH THRUST LINE  
BE SURE TO VENT POD IF SPACE BUG ENGINE IS USED.

which is built up on the plywood cross beam. This may be covered with 1/32" sheet balsa, or stiff tag stock. Take particular care with the engine installation since the thrust and surface incident lines must be parallel. We used a Space Bug Jr. running backwards. A left-hand Wasp would also do the trick, or the ambitious could carve a left-hand prop for any .049.

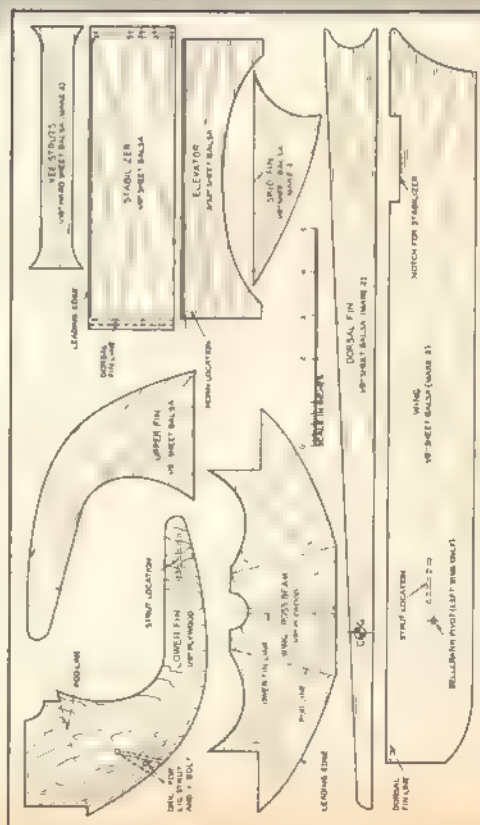
Regardless of the engine used, note that the tank, if integral, must be arranged so the fuel will feed properly. Generally this will mean running the engine on its side with plastic lines attached to the filler and vent and brought above fuel level.

Make up the wing vanes, joined at the rear with the stabilizer and elevator and stiffened with the long fins. Note how the joint goes together between the cross beam and the wing vanes, stiffened by the projection of the long fins. Use plenty of cement and give it plenty of time to dry. Check the thrust line against the wing plane and add the struts next.

The control system hardly requires explanation, except to note that unlike most models, your *Skimmer* has no lead-out wire. The control lines attach directly to the control quadrant.

A wheel landing gear may be added if desired. We built one into the original in order to locate the correct placement for those who wanted a wheel. However, there is a lot to be said in favor of flying the model hand-launched or with a U-Reely, and it looks even more "unearthly" without it.

Much of the charm of this model is its color scheme—the flashier the better, just keep a certain balance. The original had a blue cabin, red wing vanes and fins; the rest—yellow.



Full-size patterns for Space Skimmer are part of Group Plan No. 855 from Hobby Helpers, 770 Hunts Point Ave., New York 59, N.Y. (50c)



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A

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B





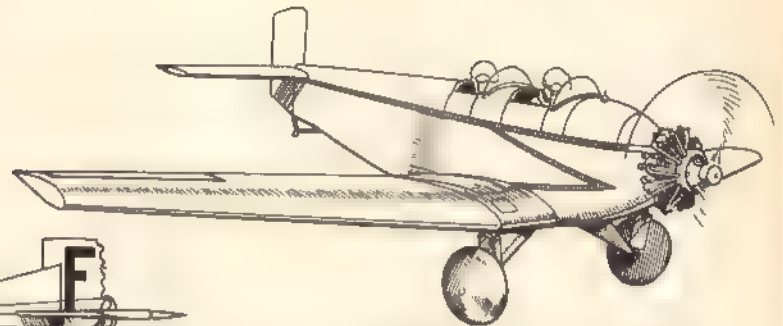
# AIR PROGRESS

By DOUGLAS ROLFE

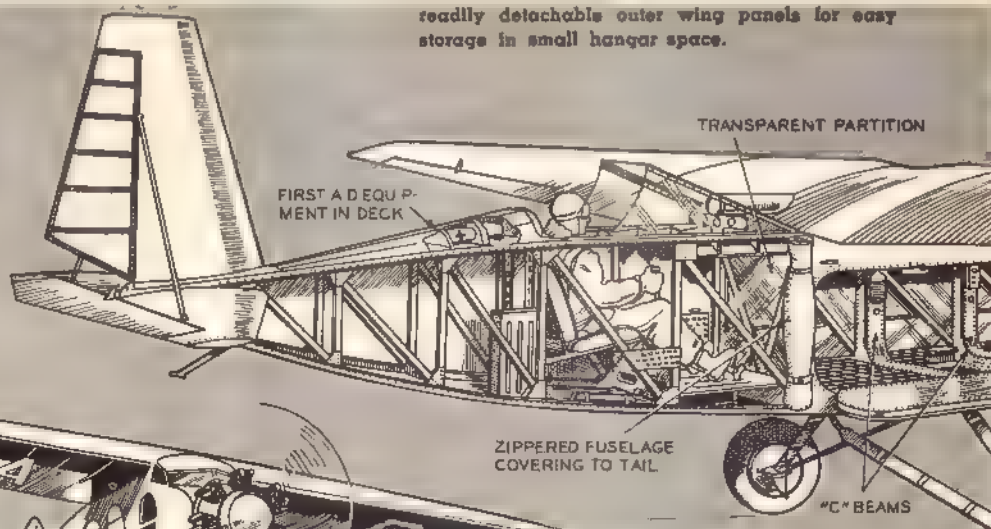
## Sidelights on the Past—



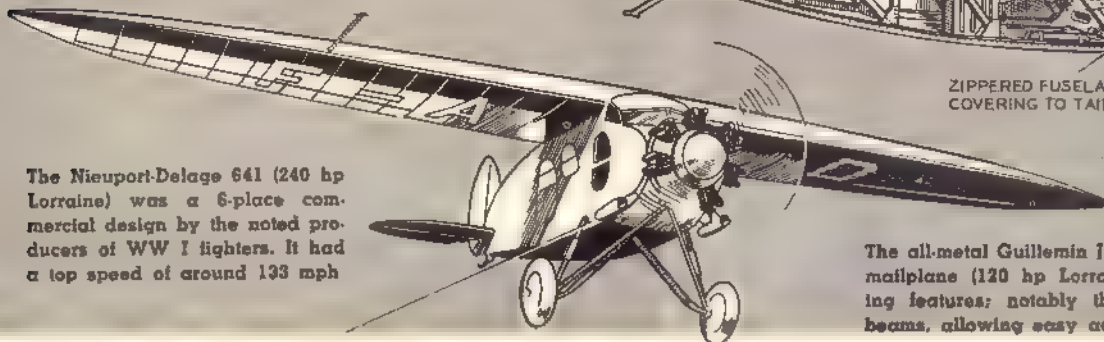
Farman F.200 (120 hp Salmson radial engine) was a 3-place sport plane with pilot located in front. Resemblance to the old Farman box kites is unmistakable. Maximum speed was 105 mph.



Farman F.230 Sportplane (40 hp Salmson radial engine) marked a considerable departure from previous Farman designs. Interesting feature was readily detachable outer wing panels for easy storage in small hangar space.



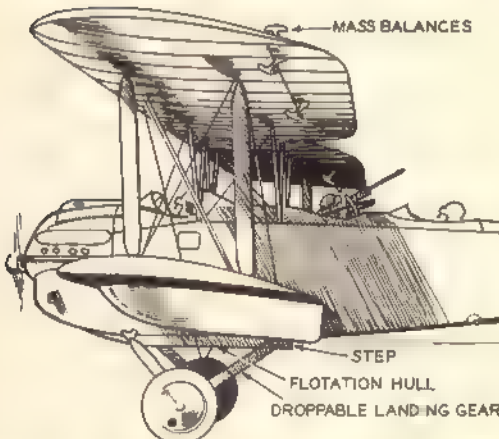
The all-metal Guillemain I.G. 45 ambulance and/or mailplane (120 hp Lorraine) had many interesting features; notably the clearance-giving "C" beams, allowing easy access.



The Nieuport-Delage 641 (240 hp Lorraine) was a 6-place commercial design by the noted producers of WW I fighters. It had a top speed of around 133 mph.



Another 6-place commercial design by a famous pioneer firm was the Bleriot 111 (400 hp Hispano-Suiza). This semi-cantilever monoplane was of mixed metal and molded plywood construction. Max. speed about 140 mph.



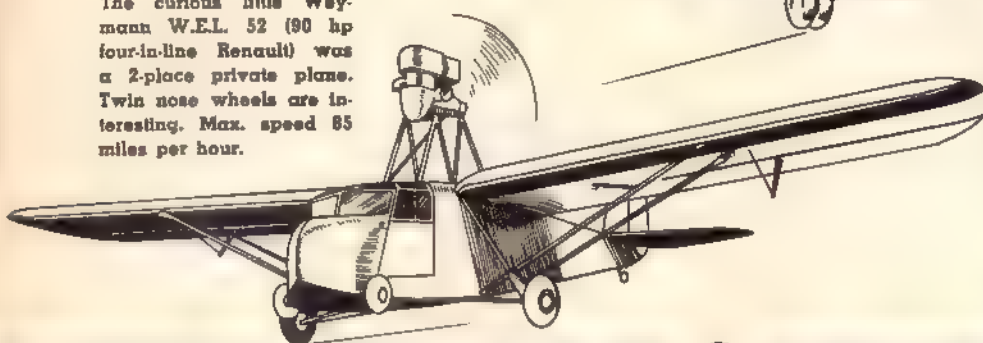
Specialists in marine aircraft, Avions Levasseur produced this 3-place shipboard spotter. A feature was watertight fuselage equipped with planing bottom. To alight on water, prop was stopped in horizontal position and landing gear dropped. Top speed 110 mph approx.

In the last Sidelights to appear on these pages we dealt with some strictly U.S. aircraft which resulted from the Lindbergh boom and covering a period from about 1929 into the early thirties. Now we take you across the Atlantic for a glance at some of the comparable types which were

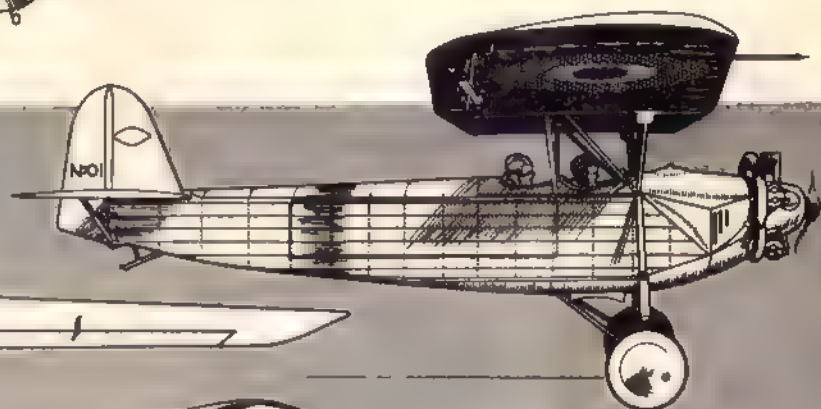
being produced in France during the same French aviation then was still well in the lead, especially in construction techniques. The selection of planes here has been chosen to mark the general similarity of various types to comparable U.S. models, but it will be noted that the individual ap

# -France

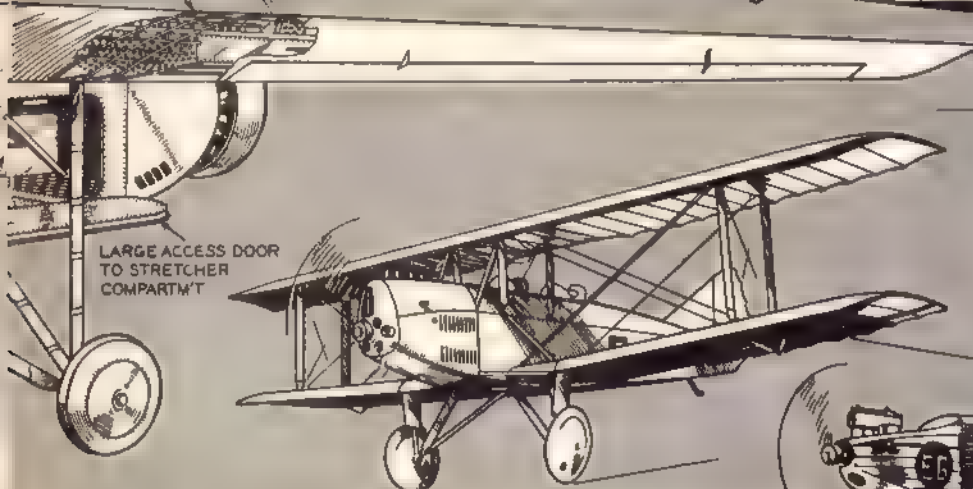
The curious little Weymann W.E.L. 52 (90 hp four-in-line Renault) was a 2-place private plane. Twin nose wheels are interesting. Max. speed 85 miles per hour.



Reminiscent of the Remington-Burnell design, the SAB D.B. 71 (three 700 hp Lorraines) was largest landplane built in France up to 1930. It seated 28 passengers as a day airliner, for night flying had 18 bunks and 8 seats. Maximum speed of some 130 mph.



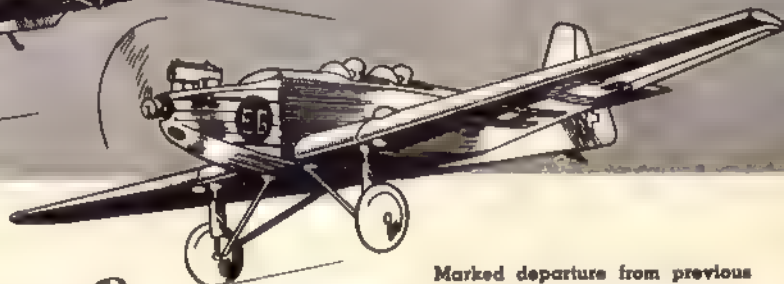
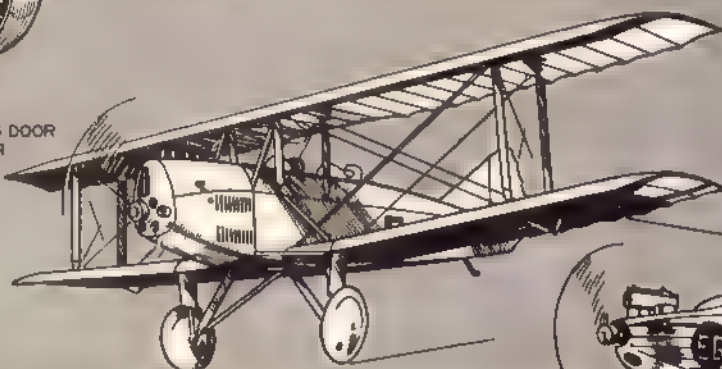
ALL-METAL WING



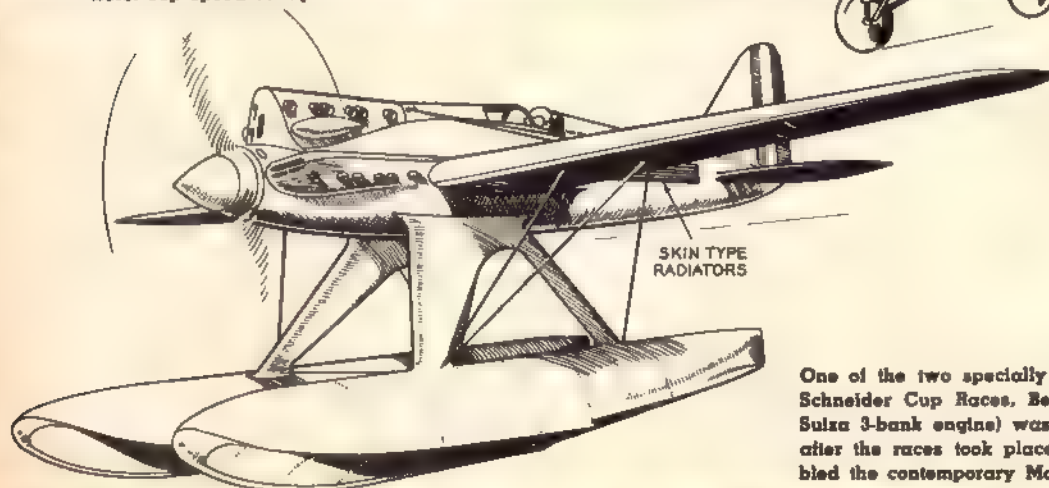
LARGE ACCESS DOOR TO STRETCHER COMPARTMENT

Lorraine-Hanriot L.H.215 (120 hp Lorraine radial) was another example of French ambulance design. All-metal fuselage and wooden wings. Top speed a low 85 mph.

Caudron C.232 (95 hp Renault) resembled the Great Lakes job built here. Top speed 85 mph.



Marked departure from previous Caudron sport planes, the C.193 (95 hp Renault) was of plywood and steel tube construction. Outer panels of wings readily detachable for storage; ailerons operated differentially.



SKIN TYPE RADIATORS

One of the two specially designed racers for the 1929 Schneider Cup Races, Bernard 120 (1,400 hp Hispano-Sulza 3-bank engine) was not test-flown until 4 months after the races took place. Outwardly it closely resembled the contemporary Macchi and Gloster racers.

Each given type was quite different. Often the French conception was ultra-romantic, and they produced some beautifully engineered planes during this period which aerodynamically were just plain flops. Such types have been ignored on these pages. It is interesting to note the number

of true pioneer firms such as Farman, Bleriot, Caudron, and Nieuport which crop up in these designs. French aeronautical engineers of this period worked as well in metal structures as in bonded and molded plywood airframes. Indeed in latter form of construction they were the pioneers.



# PHOTOGRAPHY AT ITS BEST!



Many days of patient waiting were rewarded by this photograph of a baby Black Snake poking its head through the egg shell to see the world (1/8 at 1/50).



Monkeys are great show-offs. It is hard to get them to pose naturally. This unusual shot was achieved by diverting chimp's attention from camera to his teeth (1/8 at 1/100).

## LENS ALERT ON ANIMALS

Do you have trouble photographing Fido or the family cat? Imagine this crowd!

PHOTOS BY LILO HESS

■ Recording the everyday life of insects, animals and plants via a camera is a job that takes infinite patience, preparation as well as thorough knowledge of the subject. But then, Lilo Hess is both a photographer and a naturalist. Not all her subjects are photographed in their natural habitat. Many, especially insects, have to be snapped in a special stage setting consisting of two glassed-in frames between which the subject is placed and simulated environment. The space around the frames is covered with cheesecloth, permitting the insects to breathe but preventing them from going "over the hill." Even then, they may not "pose" properly, and in order to obtain desired results Miss Hess is often obliged to employ various means to encourage the specimen into action, such as ultra-violet rays when working with day-active subjects, heat and different aromas. She depends heavily on strobe light and flash equipment with which such rapid movements as the beat of a moth's wing can be stopped, or a startled expression on an animal's face frozen. Result: most unusual photos.



Artificial flower was used as lure to pose nocturnal Prometheus moth. Glass vial contains mixture of water, sugar and honey to simulate nectar. Strobe light stopped rapid beat of wings (1/11).

Moving day in Rodentown: camera catches white mother rat carrying one of her babies to new quarters just as flash fires (1/11 at 1/100).



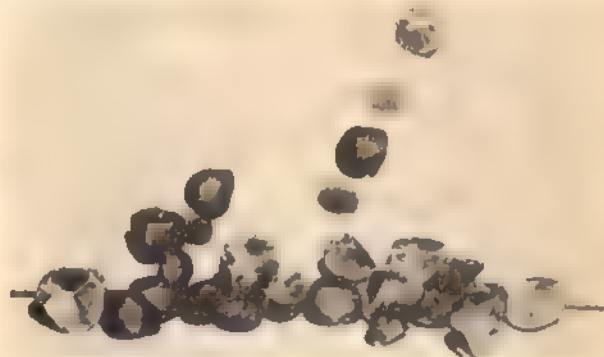


Angry bat. Though normally the animal hangs upside-down when in repose, it will sit upright when angered. An exceptionally fine photo showing details of hand-claws and folded membrane-wing.

Chimp was faced with problem of how to reach bananas at ceiling when only other object in an empty room was a pole. As you see here, he solved it. What a sense of balance!  $f/8$  at  $1/100$ .



Venus fly-trap plant, found in southern United States, feeds on insects. Horse-fly here tries to keep jaws from closing in on it. Trap is about to slam shut and imprison victim ( $f/8$  at  $1/100$ ).

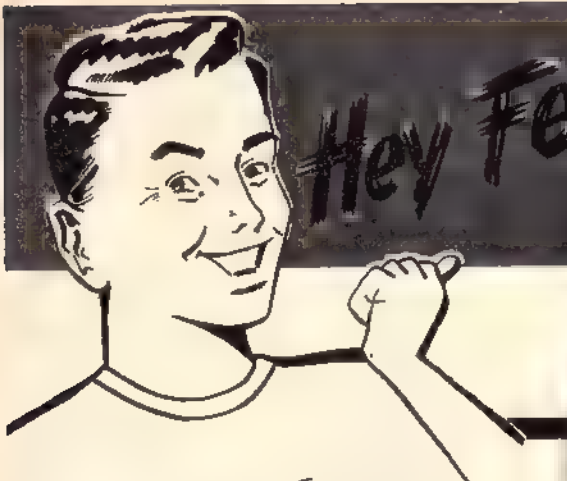


What makes a Mexican jumping bean jumpy? Larva of a small moth spinning its cocoon inside gives it that nervous twitch. These in photo are especially lively. It seems ( $f/11$  at  $1/100$ ).

Despite its misleading name, the Praying Mantis is a predatory insect with insatiable appetite even for friends. Here a female is about to make a meal of a succulent cockroach ( $f/8$  at  $1/100$ ).







*Hey Fellas!*

**LOOK AT THESE**

## F-100 Super SABRE

18" WINGSPAN For Eng. .035 - .074

Man! Your friends will really flip with envy when you put this brand new "Super Sabre" through its paces. It's U-Control . . . an authentic scale model of America's first supersonic fighter. Build and fly it yourself . . . so easy, even a beginner can do it. Note the tricycle landing gear (with 3 rubber wheels) that prevents broken propellers . . . assures safer landings. Model is 100% complete . . . all pre-fabricated with carved balsa fuselage, formed metal cowl, all pre-cut parts and easy to follow plans.

ONLY  
**\$1.95**

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18" WINGSPAN For Eng. .035 - .074

Like a flying "fire-streak"? Then get behind the controls of this all-new RED DEVIL . . . it takes to the skies like a falcon. Ultra-sleek lines combine with flaming color scheme for the most exciting plane you'll ever handle. And special prefabbed construction makes it the easiest model you'll ever assemble. Complete model is put together in "nothing flat." Includes formed landing gear with rubber wheels, carved balsa fuselage, colorful flaming decals, and all balsa, plywood and aluminum parts cut, formed or shaped for you.

**\$1.69**

**Specially Priced**



**Make and Fly This  
Sensational Model of  
America's Hottest  
Jet Fighter!**



**The Perfect Sport Flyer  
Terrifically Colorful  
Practically Assembles  
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Sleek new speedboat for OUTBOARD engines. Prefabbed, w. genuine mahogany veneer hull.



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"1/2 A" Eng., CO<sub>2</sub> or Elec. Motors. Has a 12" carved balsa hull, brass metal fittings, etc. Aeronautical design.



**RIVIERA \$3.50**

For "1/2 A" Eng. or Electric Motors. Authentic Chris-Craft replica with 12" carved balsa hull & brass fittings. All parts finished.



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"1/2 A" Eng., Jetex, Elec. Motors. Low cost speedboat thriller. Prefabbed, 12" carved balsa hull, brass metal fittings, etc.



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LENGTH: 9" For "1/2 A" Gas Eng. Model speeds over 40 m.p.h. Direct wheel drive. Prefabbed formed body, rubber wheels.



**AMERICAN BOY \$1.00**

SPAN: 18" For .020 to .074 Eng. Our U-C trainer, the biggest dollar's worth of model airplane in the world. 100% complete.



**NO. AMER. TEXAN AT6 \$1.95**

SPAN: 18" For .035 to .074 Eng. Our extremely popular scale model of the AT6 Trainer. Carved balsa fuselage, etc.



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SPAN: 24" For .09 to .19 Eng. Class 'A' profile trainer. Extra rugged. Assembles in a jiffy. 100% complete, 100% prefab.



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SPAN: 16" For .020 to .074 Eng. Batty Skilton's (Pitts Special) championship stunt flyer. Highly colorful, all prefab model.



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**SPIRIT OF ST. LOUIS**



**PIPER CUB CRUISER**



By DALE KIRN



# WIRE: Texas twist for Control Model Flying

First jet model Dale converted to M/L picked up 10 mph. He set new national speed record of 154.98 mph with this ship; on M/L tour upped that to 159.65.

**The Stanzel clan of Schulenburg has refined its Mono-Line system with spectacular results**



■ Before going into the subject, I believe I should tell you how I became interested in this single-line method of control for model airplanes. While in the Air Force I was stationed in San Antonio for a couple of years and it was there that I first saw Vic and Joe Stanzel demonstrating how Mono-Line worked. I had heard of Mono-Line long before seeing it operate and had formed the opinion that it was too complicated and that it wouldn't be "positive" enough. I soon learned that my preconceived notions were in error, and after seeing several Mono-Line models flown, I decided it was worth a try.

My first plane was a Tuffy, powered with an Arden .099; flew it on 70 feet of

.018" line and after three or four flights had the "feel" of it. There is a definite feel while flying a Mono-Line model, just as there is in conventional two-wire flying. However, the flyer will find that a somewhat different technique is required in flying. For instance, on my first flight the model slacked off a little and I automatically found myself running back to take up the slack line. While backing up, I had completely forgotten to give it control, thinking I was flying a two-wire ship in which case giving control would have been to no avail . . . as a result, I "klobbered" that flight. Next time I concentrated a little more on what I was doing, remembering that there was no point in running inasmuch as full con-

trol is still retained with a slack line—from then on it was easy.

Another factor I soon learned was that if you increase the size of the control line diameter you get more control, that is, with the same handle movement. As little as .002" diameter increase is very noticeable and .004" is even more so. At present I'm flying a stunt plane with Mono-Line Control on a 70' line of .024".

On a scale ship this factor would be especially helpful. On its test hop you could use a line that will give the desired amount of control. If you feel that it is not sensitive enough, use a larger diameter line next flight. Most scale models that get into trouble are underpowered which really gives the flyer a work-out whipping his model to get the lines tight so he can maintain control. But in Mono-Line flying this excessive whipping is not a necessity as the line does not have to be taut in order to transmit the control (torque) to the controlling unit in the plane. Because of this positive control feature on slack line, your model may be flown in windy weather which would normally ground most models.

Many have asked me just what does it feel like to fly a Mono-Line model. It's hard to express in words exactly what you want to say (this "feel" we speak of). Ask yourself this question: What does it feel like to fly a two-wire plane. To a person who has never flown a two-wire plane your words of explanation mean very little. But when you help him with his first flight he experiences this "feel." The same holds true for Mono-Line flying.

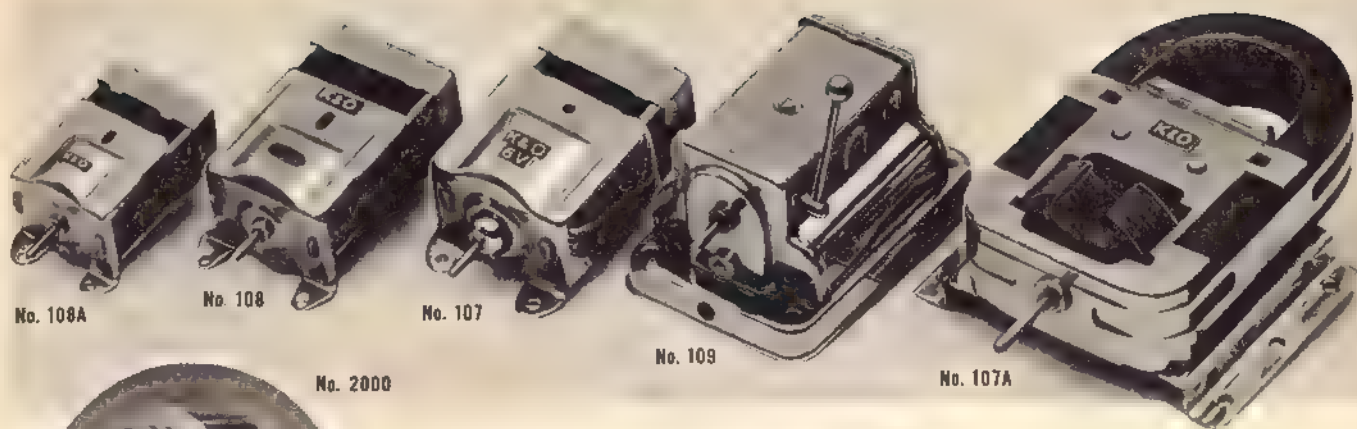
One point to be stressed when using Mono-Line control—the elevators must work up and down *freely*. The elevator hinge may be fabric, metal, etc. as long as there is no binding or stiffness. To check whether your control system is working properly, turn the cam to full up position and release; if it snaps back to neutral, it is all right. Now, turn cam to full down position and release . . . it should snap back to neutral. If the elevator hesitates or stays in either up or down position, it is an indication that there is binding or drag somewhere in your set-up. Perhaps the cam has a dab of glue, as any clear substance adhered to metal is hard to see. *Never* attempt to fly your model until control system is working freely. If you do fly with a sticking or hanging control, the flight (if completed) will be quite erratic.

I feel that Mono-Line opens a new field in A/2 flying—especially for the beginner. He doesn't have to run all over the flying circle to maintain control of his plane. And, because of the positive control feature, he may fly on a long line (40-60 feet) to eliminate turning around so fast.



Ex-Air Force champion modeler Dale Kirn has joined Victor Stanzel's design staff

and is now making nation-wide tour demonstrating Mono-Line. In rear, his trophies.



## "Anchors Away"

**A LITTLE DEMON FOR  
POWER AND PERFORMANCE  
a tiny package of dynamite!**

A plastic encased D.C. series wound electric motor unsurpassed in power, low amperage drain and durability. Weighs only 2 ounces. Tiny but WOW!! On 3 volts it turns up 10,200 r.p.m. High efficiency rating at 8000 r.p.m. Very high torque, ideal for model boats—fits almost all plastic boat kits now on the market. An outstanding value at a very low price!

No. 2000 Electric Motor (plastic case) Size,  $1\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{2}$ " high. Drive shaft .094 diameter, 2" long. Features alnico magnet and phosphor bronze brushes. Price only ..... **\$1.50**

No. 108A Electric Motor (midget size). Compact, ideal for small boats and cars. Operates on  $1\frac{1}{2}$  to 3 volts with 5200 r.p.m. at 3 volts. Nickel-plated case, permanent alnico magnet, phosphor bronze brushes. Weight 2 oz. Size  $1 \times 1\frac{1}{2} \times \frac{1}{2}$ " .. **\$1.25**

No. 108 Electric Motor—Ideal for 12" to 15" boats. Operates on 3 to 6 volts, 11,850 r.p.m. at 6 volts. Fast, powerful. Wt.  $3\frac{1}{2}$  oz. Drive Shaft .087 dia., permanent alnico magnet with phosphor bronze brushes, nickeled case. Size  $1\frac{1}{4} \times 2\frac{1}{4} \times 1$ " .. **\$2.00**

No. 107 Electric Motor—high torque, for boats up to 20". Operates on 3 to 6 volts, 7600 r.p.m. at 6 volts. Drive shaft .087 dia., nickel-plated case, permanent alnico magnet, phosphor bronze brushes. Weight 5 oz. Size  $1\frac{1}{2} \times 2\frac{1}{2} \times 1$ " ..... **\$3.00**

No. 109 Deluxe Electric Motor (Diesel styled) with 3 to 1 reduction gear drive, ideal for large boats. Operates on 3 to 6 volts, 2380 r.p.m. at 6 volts. On-off forward-reverse switch. Case nickel-plated. Wt.  $5\frac{1}{2}$  oz. Size,  $1\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{2}$ " .. **\$4.50**

No. 107A Electric Motor, big, sturdy, power-packed yet quiet, smooth performance on 6 to 12 volts—reversible. Speed depends on voltage used, up to 12 volts. The motor for big models. Nickel-plated and gray. Size,  $2\frac{1}{4} \times 3\frac{1}{2} \times 1\frac{1}{2}$ " ..... **\$4.95**

No. 100 Electric Outboard Motor (Speed Master).  $4\frac{1}{2}$ " high, weighs  $4\frac{1}{2}$  oz. Operates on 3 to 9 volts, reversible. Sturdy, fast, powerful. Aluminum die cast construction, permanent magnet, carbon brushes. Powers most boat kit models. Price, **\$2.95**

EVINRUDE Big Twin miniature scale model battery powered Outboard Motor. Precision made aluminum die cast construction, faithful even to color.  $5\frac{1}{2}$ " high, weight 5 ounces. Permanent magnet type electric motor guarantees smooth, trouble-free operation on 3 to 9 volts. Full two-way swivel action. Complete with stand and accessories ... **\$4.95**

JOHNSON Sea Horse miniature scale model battery powered Outboard Motor as illustrated below. All specifications similar to those of the Evinrude, same power, weight, size and performance Also complete with stand, accessories, etc. .... **\$4.95**

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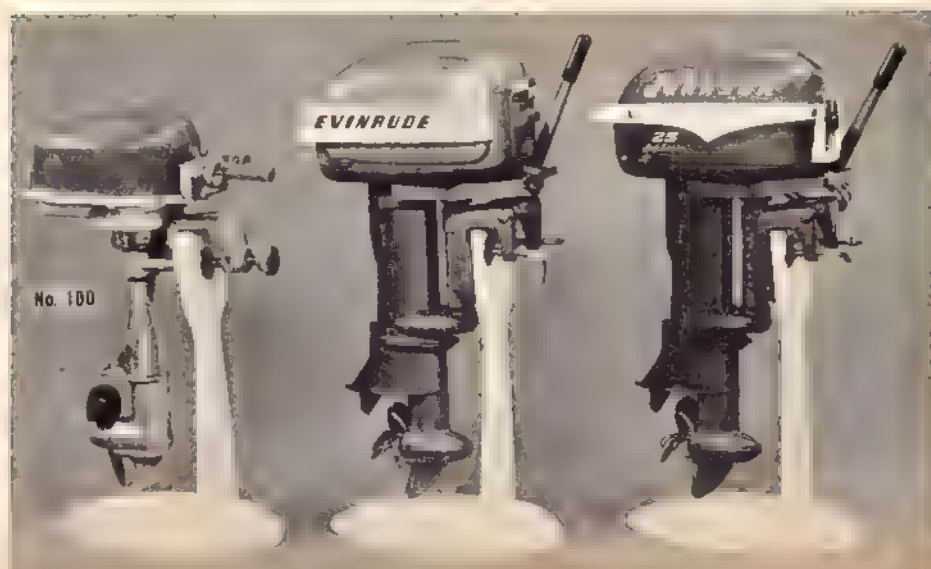
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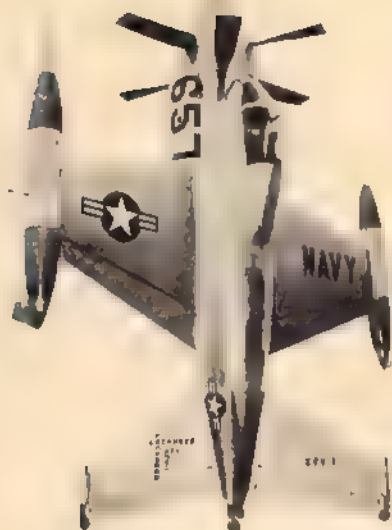


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# JOB CAREER SCHOOL GUIDE

**Classroom on the Ocean.** In moving to its new site fronting the Pacific, Santa Barbara College has made the course in Marine Biology easier to take than ever. The Marine Biology Lab is in a remodeled building at the water's edge, complete with open aquaria, plenty of teaching space, beach seines and dredges. Our photo below shows the boys and girls at work, complete with professor. Which one is he, you ask? The guy in the middle, of course! (Faculty Row Joke.) But it's our guess that Dr. Demorest Davenport, associate professor of zoology, will not deny his students a refreshing dip in the ocean between classes.

Santa Barbara College is a unit of the University of California. Tuition is free to state residents; non-residents pay \$150 per semester. The school has student dormitories that provide low-cost board and room. It offers an A.B. degree in divisions of Applied Arts and Liberal Arts; Army R.O.T.C. (Infantry).

**Your Career in Acoustics.** Ever shout "Yoo-hoo!" in a cave, tunnel or viduauct, not to mention a narrow canyon, just to hear Sir Echo answer in kind? Or engage in a little contest with Bill (Loud Mouth) Jones to "see" who could get the most echoes from a single shout? Ever think that an interest in sound could be the basis for a career? Fact!

In today's world a genuine fascination for sound can be developed into a profession, one that's expanding all the time.

As pointed out by the Acoustical Society of America, the science of sound and vibration now has at least a half dozen main branches. There's Electro Acoustics, concerned with the development and improvement of loudspeakers, microphones and sound reproduction. Physical Acoustics, which delves into the properties of solids, liquids and gases using the propagation of acoustic waves as a scientific tool, embraces the study of ultrasonics. The jet engine has added the consideration of man's whole neuromuscular system to the study of Psycho Acoustics. In Industrial Acoustics you explore the control of noise in industrial production and testing. Subsurface Acoustics deals with sound as applied to military and oceanographic problems. And Architectural Acoustics and Musical Acoustics (there's a bug in this microphone, chief) are other important fields.

To enter any of these branches, you need the minimum of an A.B. or B.S. in physics or engineering. You'll have to bear down on math, mechanics, electronics, communication circuits, thermodynamics, kinetic theory and the like. Greatest demand for your services will be in industry, with development work in Electro Acoustics and noise control heading the list. Government labs also need acoustics experts, for development both "upstairs" and "down below."

The Acoustical Society of America has a general pamphlet on the whole subject. Its address is 57 East 55th St., New York 22, N. Y.

**Home Movie Films in Electronics.** Right in your own room, with a bedsheet fastened on the wall for a screen and yourself as the operator showing 16-mm instruction films both supplied as part of the course—that's the picture of a unique service offered to its correspondence students by DeVry Technical Institute of Chicago. This long-established midwest school (formerly known as DeForest's Training) which specializes in technical training in television, radio and electronics, pioneered in visual education. So far as we have ascertained, it is the first and still today the only or-



ganization of its kind to make available to "mail" students the use of films in this triple-threat field. Its efforts in this respect have received Congressional praise.

The films consist to a great extent of animated diagrams depicting fundamental principles in electricity and electronics—showing electrons, for example, streaming around circuits and other "hidden actions" not possible to see otherwise. Here's how the service works. Any enrolled home study student is eligible to receive the films after completion of his 25th lesson. On payment of a nominal deposit, he is sent a manually operated projector and the first reel. When he has studied this to his satisfaction (run it slowly or backwards if you like), he returns it and gets the second reel—and so on until he has seen all 16 of the 100-foot film reels. Then he returns the projector and his deposit is either credited to his tuition or refunded.

In common with many schools of its kind, DeVry conducts both a program for resident students at its fully equipped training center in the Windy City and one for home study of which the film service is a part. The home training has two divisions. The first covers the fundamentals of electronics plus a choice of 1) Television and Radio Construction, Operation, Installation and Service, 2) Radio Communications, or 3) Industrial Electronics, or 4) Nuclear Instrumentation. The second home study division, after giving out with the fundamentals, specializes in television training. Both branches, in addition to the film service available, include shipment of electronic parts mounted on individual bases with spring clip terminals for "bedroom lab" projects that include building commercial-type test equipment. The second or mainly television branch includes the parts to make a 21-inch TV receiver. All parts become property of the student.

The address of this school is: DeVry Technical Institute, 4141 Belmont Ave., Chicago 41, Ill.

**The Sky's the Limit**—for those who enter engineering work in aviation. That's what they keep telling us, but another point you hear less about is the fact that American aviation, whether through the medium of industry, government, private organizations or whatnot, is eager to lend a helping hand to students interested in climbing high in the realm of aeronautics. We are referring to scholarships, fellowships and various opportunities for free training. Show that you're willing to work and study, can master different phases of effort—and you'll find those hands beckoning.

Proof of this in a big way is contained in the cases of the two fellowships in flight test engineering awarded this spring by the Institute of Aeronautical Sciences to a couple of college engineering students. Each fellowship is good for two years of graduate work at Princeton University, in advanced courses designed for flight test engineers of the Navy and Air Force.

Let's backtrack and see how the boys arrived at this very desirable stage in their careers.

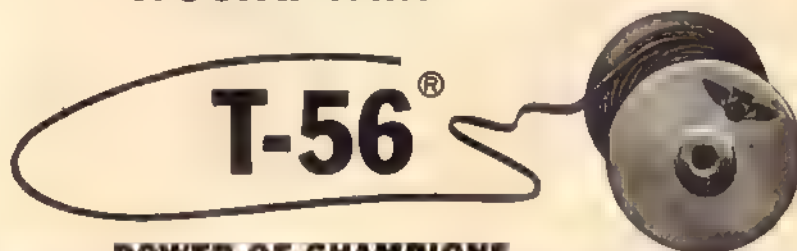
One recipient was William B. Browne, 26, a senior taking mechanical engineering (aeronautical option) at North Carolina State College. He had attended the University of North Carolina before enlisting in the Navy in 1948. As a Navy pilot he logged 750 hours in the air, half of it in jet fighters while attached to a carrier-based squad-

(Continued on page 86)



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# BOOKSHELF

FOR YOUNG MEN

Conducted by  
**WILLIAM J. LOWRY**



**DRIVING TODAY and TOMORROW** by Margaret O. Hyde (Whittlesey House, McGraw-Hill Book Company, 330 West 42nd Street, New York 36, N. Y., 143 pages—\$2.50) is a guide book to expert driving.

Although this volume has been written for the teen-ager who is about to accept the responsibility of driving a car for the first time, it is also an eye opener for the parent who may have been driving for years. Today driving is a fine art. Just as a ball player needs training and a thorough knowledge of the rules of the game, so does the new driver need training before getting behind the wheel and taking off on a public highway. The better trained the driver the less likelihood of an accident.

A good deal of space in this manual is given over to a simple, detailed explanation of the mechanical function of the automobile.

Open road driving presents its own peculiar hazards. Uncontrolled speed, for instance; lack of knowledge of the car's braking power can be sheer suicide. Speed and safety can be combined as the author indicates with her examination of the National Hot Rod Association.

**MIGHTY MEN of BASEBALL** by Charles Spain Verral (Aladdin Books Publisher New York, N. Y., 140 pages—\$2.50) is an absorbing book for any season.

The author, in this semi-fiction work, has taken a character by the name of "Fireball" Lewis and given him the task of building a world-beating team. The choice of players are all the "greats" from the very beginning of baseball history.

Through the extensive research of the author the reader can relive many of the great moments of baseball, such as the famous pitching duel between Christy Mathewson and Chief Bender, he can see Mickey Cochran and Lou Gehrig in action along other "mighty men."

The reader will not only enjoy this book from the lucid description of many of the events that made baseball history

but many a lively discussion is sure to develop with any old-timer fans in the household.

**AERO MECHANIC'S QUESTIONNAIRE** by Ralph Rice (Aero Publishers, Inc., 2162 Sunset Blvd., Los Angeles 26, Calif., 206 pages—\$5.00) is the newest edition of practical questions and answers for airframe, powerplant mechanics and flight engineers.

Here is a volume filled with over 2000 multiple-choice type questions, each answered with an explanatory note. With this new edition the subjects covered are civil air regulations, powerplants, propellers, lubrication, carburetion, electricity for the powerplant and airframe mechanic, rigging and assembly, etc.

This book makes an excellent reference work to be put on the working library shelf for use by the young man who is training for aero mechanics and flight engineering.

**YOUR TRIP INTO SPACE** by Lynn Poole (Whittlesey House, McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, N. Y. 224 pages—\$2.75) is full of accurate information about space travel and what it will mean to every one of us.

There is little doubt that in the not too distant future human beings will be flying off into space. Those people who feel that the world lacks new frontiers will find space travel a real challenge. Already the WAC Corporal has reached out from the earth a distance of 250 miles, going well into the exosphere where ultra-violet rays emanating from the sun make the temperature soar as high as 6000 degrees C.

The human will have to learn to accustom himself to wide ranges of acceleration and deceleration. Constant muscle control will be necessary to keep movements slow and relaxed, since one jerky movement and an object held in the hand will fly off into space.

Catsup and pancake syrup will come in tubes, since there is no gravity to pull

it on your food, no showers—water won't fall; to drink, liquids must be sucked through a straw.

The crew members of the space ship must of necessity be highly trained specialists, for a minor miscalculation can mean the lives of all the crewmen and the loss of millions of dollars of equipment.

When will this happen? The author feels sure it will occur in the next fifty years if not sooner.

**RADIO CONTROL HANDBOOK** by Howard G. McEntee (Gernsback Publications Inc., 25 West Broadway, New York 7, N. Y., 192 pages—\$2.25) is complementary to Safford's popular book "Model Control by Radio."

The author is no stranger for the reader meets him each month in "ATH" in his interesting column "Everything Under Control?" In this volume more detailed information is given on the actual construction of practical units. The book is written for the reader with a limited knowledge of electronics, model design and construction. It gives him practical methods for choosing equipment suitable for his various models.

Although the author describes relatively simple control systems for model planes—because this hobby represents the largest user of radio-control equipment—the same ideas can be used with minor changes on model boats, cars etc. In fact, in the last chapter three complete control systems for boats, cars and tractors are discussed.

This is an ideal handbook for the model maker and a "must" if he is going into radio-control.

**DESIGNING for PEOPLE** by Henry Dreyfuss (Simon and Schuster, Inc., Rockefeller Center, 630 Fifth Avenue, New York 20, N. Y., 240 pages—\$5.00) tells what Mr. Dreyfuss and his partners have learned about the average American—his likes and dislikes.

The author, working from the inside out on a product under consideration, finds that in determining the final shape of the object he is governed by what it does, not by what it should look like.

The designer is also governed by "survival forms" of things that we are used to and hate to see changed. One example is the clock with the numerals on the face. Children learn to tell time often before recognizing numbers; they do this by memorizing the positions of the hands on the clock dial and it makes no difference whether the numerals are Arabic, Roman or just dots. Yet it is demonstrated over and over again that popular-priced clocks and watches without numerals on their faces simply don't sell in large quantities.

The problems that the author has faced have encompassed all our everyday living and more. In working with the government we see the problem that is posed in making a destroyer not only more livable for the crew but also more efficient in the manner new equipment is housed within the vessel.

For the reader interested in a career in design no better introduction to this creative profession can be found, and for anyone—here's fascinating stuff.

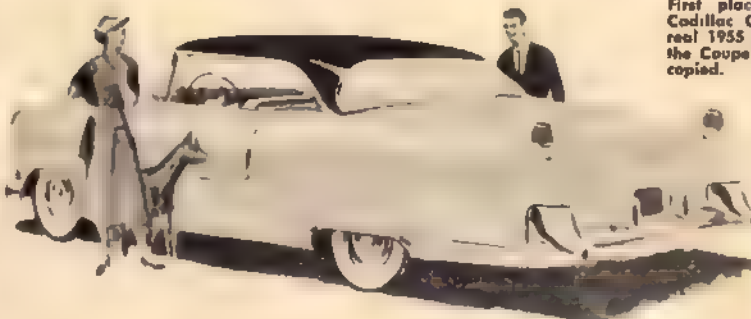


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Somebody will win. Why not you? So hurry to your nearest hobby shop or other store and get one of the magnificent Monogram Cadillac kits and an official contest entry blank. You don't have to build

a model. Just follow simple rules and mail before midnight July 31st. Anyone can enter. Boys, girls, adults—all are eligible to win a \$5000 Cadillac or one of nine other big prizes.

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## Model Boating

(Continued from page 6)

to go plus two made by his father, Frank. Joe Horvath had two new craft fitted with home-made engines, while Tom Harges had a Class F (.29 cu. in.) job. Some home-made cast stainless steel props were brought out by Tom Murphy.

We are sorry to hear of the decision by Bill Baughman to give up his position as Publicity Director, District 3, for the I.M.P.B.A. Bill found it impossible to properly carry out his duties as he would like, and resigned. He will, of course, still retain his interest in the I.M.P.B.A., and his activity in local boating in the Los Angeles area.

Some words of wisdom to anyone who hopes to run an R/C model boat contest come from Carl Dunlavy, who was one of the main wheels in such an event run off at Riverside, Calif., and sponsored jointly by the Corona Model Boat Club and the Inland Model Boat Club. First, we should state that the contest was considered a huge success. There were 32 entries, representing 18 different cities. One reason for the success may be seen in Carl's statement that planning for the big event started nine months before it came off! All entrants who desired had two runs in the event they entered, and top winners were as follows: *Precision Event*—1) Stuart Babcock; 2) R. H. Townsend; 3) Clint Lewis. *Speed Event*—1) Lloyd Allen; 2) Carl Dunlavy; 3) Dick Crichton. *Beauty Event*—1) Tony Chiboucas; 2) Tony Toman; 3) Darrell Williamson.

A few of the reasons why the meet

was such a success are: 1. That nine months of planning and work already mentioned. 2. Everyone connected with the meet talked it up locally—at the restaurants, barber shops, at 10 o'clock coffee time, etc. Local papers carried several stories on the coming event, and local radio stations plugged it. A display of boats was put in a window of a Corona hardware store, and the clerks were briefed on the meet so they could answer questions (one of them got so interested he purchased a boat and radio equipment himself!) 3. A thousand neat information and rules folders were printed up and handed out to everyone who could be reached. Furthermore a supply of them was given to hobby distributors salesmen, who handed out a few at every shop they stopped in. 4. Written permission was obtained long before the event, for use of the portion of the Lake that was required, from the Riverside Park Commission. 5. Electricity was arranged for, to run P. A. system and soldering irons. 6. Local Sea Scouts were recruited (complete with uniforms) for manning the retrieving boats, "Shore Patrol," etc., and their Skipper was on hand to see that duties were carried out to the letter.

7. Nine judges were lined up, so that three could always be on duty and no one got too tired. A clip board was prepared for each, with Rules, Precision Course diagram, special instructions. A large Master Score sheet was kept up to date at all times, so the Judges wouldn't be pestered by questions on who was placing where. 8. Entire pit area was roped in, with just a single entrance, past the Registration Desk. As entrants registered, they filled out an information sheet, got a number for their back, and turned in their transmitters. Each en-

trant was allowed a single helper and everyone in the pit area had to have some identification. Spectators could line up outside the ropes to watch pit work, and with the P.A. system to keep everyone informed, the spectator problem never existed. And there was a crowd on hand. The launching dock was within the roped-off pit area. 9. Every member—and there were no exceptions—in the two sponsoring clubs was given some duty to perform, but all were volunteers. 10. A lot of money was saved by using home-made trophies, consisting of "silver" plastic loving cups mounted on stained cedar bases. The work was done carefully, and the cups looked good. Each trophy had a ribbon affixed, with contest place stamped in gold. Nine trophies and fifteen ribbons cost only \$8.70. 11. The meet was started at 9 a.m., and was completed and the area completely cleaned up (an important point) by 4:30 p.m. Letters of thanks were sent to all who had helped, including Park Commission, Sea Scouts, American Legion, etc.

Now—what would they do differently next time? Carl emphasizes these points: 1. Closer breakdown of points awarded in Precision. The boys were just too good and several ties had to be run off. 2. In early planning, the date of April 10 had been selected, but no one realized this was Easter Sunday. That mistake will not be repeated, as there would probably have been more entrants on any other Sunday. 3. The buoys should be spaced out more; running area was about 75-100 ft. square and large fast boats were at a big disadvantage. 4. Provide beach umbrellas for Judges stand and Registration desk. 5. Have a Direction

(Continued on page 63)



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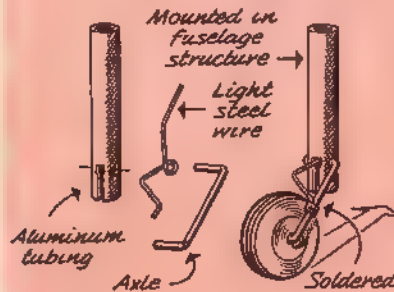
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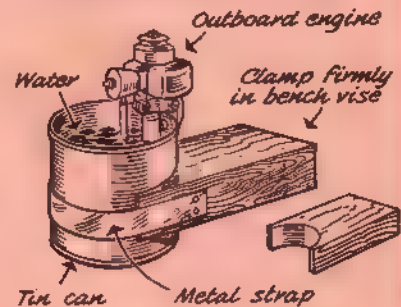
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Realistic "Knee Action" gear leg by Phil Fisher, Norman, Okla., successfully used on ducted-fan MIG-15, is good shock absorbing type—



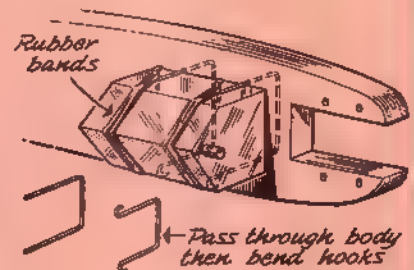
Test stand for water-cooled outboard model engines is quickly made of handy parts. Assures safe run-in. Contributed by Bill Ball, Ottawa, Ontario, Canada



## MODELERS

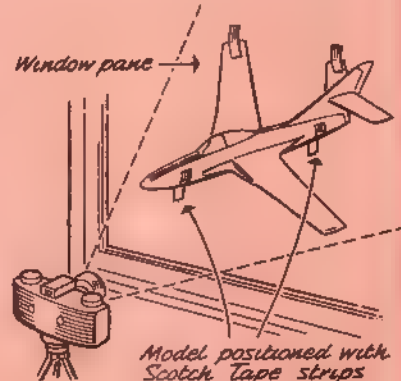
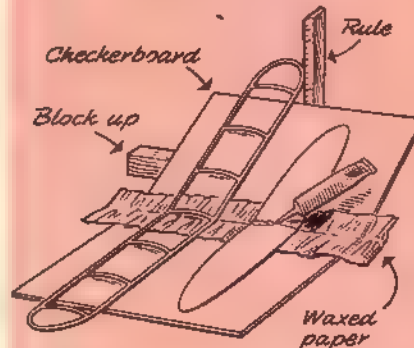
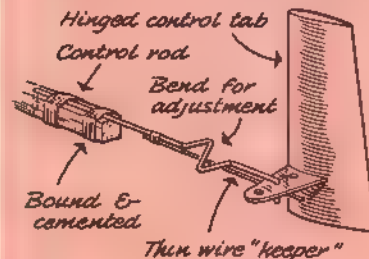
## Sketch-book

Have you developed something new in construction, control, operation or finishing of model craft? Send a rough sketch—we redraw it and pay \$10 if accepted. Only original ideas; no entries returned.

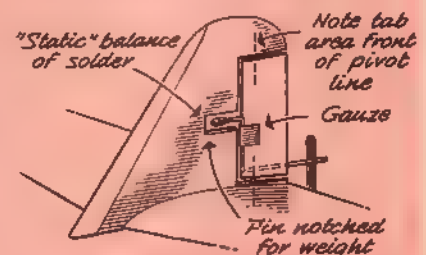


Simple tank installation for profile combat or trainer model permits interchanging tanks, shifting position for top performance. Rubber tends to reduce vibration. Tested by Bill Harris, Cottage City, Md.

British R/C modeler, Geoffrey Pike, recommends this adjustable, quick-detachable link for radio-control or control-line model surfaces—



Small scale models can be photographed realistically against plain sky background by taping to window pane. Back-lighted, tape does not photograph says Errol McCarthy, Billings, Mont.



Light indoor wing frames and sheet balsa glider wings can be joined with precise dihedral by use of hinged board for jig... Submitted by Bill Wiese, Tipton, Kansas

For most efficient R/C tab operation, static & aerodynamic balancing is advised by Eugene Warren, Levittown, L.I., N.Y.

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**TIPSY** — Prefabricated scale stunt control line; 30" span — .074 to .29 displ. **\$5.95**

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**WING DINGUS** — Prefabricated for stunt and sport. Span 16"; area 90 sq. in. — .020-.099 displ. **\$2.25**

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**SUPER DING** — Stunt model with symmetrically airfoiled balsa wing; 5 $\frac{1}{2}$ " chord; 18" long. Includes Cub .049A engine, prop, control handle, flying lines, and decals. **\$7.50**  
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**FOKKER D-7** — Airfoiled and scalloped balsa wings. Wing and landing gear bolt mounted. Includes Cub .049A engine, prop, control handle, flying lines, decals. Wing span 18". **\$7.50**  
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# MASTER MODEL CRAFT

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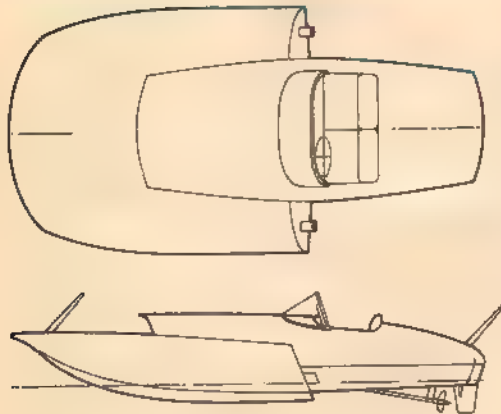
add 25c per kit by mail





# Boat Design Competition

FIRST  
\$50  
AWARD



The Cahdro by Bruce Wheeler of East Lansing, Mich. Name derives from combining words "catamaran and hydroplane"; features of both are present in the design. Hull is a modified three-point hydroplane with the two forward points becoming twin hulls of the catamaran. Hollow section causes boat to plane at lower speeds and adds to overall stability as more of the hull is in water. Powered by a 250 cu. in. engine.

"Contest 35" is the name of this lovely cruising and racing sloop by Bob Dieterich of Seattle, Wash. Unusual features are the lack of conventional stern and special construction consisting of 3 layers of 5/16" cedar strips laid diagonally over longitudinal frames.

THIRD  
\$10  
AWARD



SECOND  
\$25  
AWARD



For those economically minded, Martin Heppel of San Francisco, Calif. designed this inflatable dinghy made of plastic material. Folds easily for stowage in garage or for transportation in car. Light outboard motor of 15 hp makes rig ideal for fishing, short sails.

Rules governing this design competition are as follows: Profile (side), plan (deck) and (cross) sectional views of the proposed craft will be required, plus any detail sketches necessary to illustrate unusual features. Do not handicap yourself by submitting hull drawings less than 6 inches in overall length. Give sketches of craft from three-quarter front and rear positions. Photos of a model of the proposed design may be included. Information of powerplant(s), estimated performance,

dimensions and explanations of special features are required. Data as to age, occupation or schooling of the entrant should accompany each submission. Mail entries to Boat Design Competition, Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N.Y. Entry each month judged most practical or of greatest significance will receive \$50; \$25 will go to second place and \$10 for third. The editors regret they cannot enter into any correspondence or return entries.

(Continued from page 59)

Finder or Interference Locator on hand; interference was suspected at times, but could not be verified. (Possibly came from Police cars that stopped to see the fun).

We have given considerable data on this boating event since it is evident that a lot of thought, planning and work went into it, all of which were fully justified by the results. Everyone expecting to conduct a similar event would do well to read the above several times. We are sure that Carl will be glad to give them other hints, too, if they will write to him care of Carl's Hobby Shop (610 E. Grand Blvd., Corona, Calif.).

Couple more items on R/C boats (there's a lot of R/C in this column, but only because you speed men, yachtsmen, etc. haven't sent any news of your branch of model boating. We think you ought to be represented here—don't you?), and most important seems to be the need for every single R/C boat operator to send in and get his F.C.C. license.

A year or so ago, we had some news here of R/C boating in the Richmond, Va. area, and recently we have received more from the same informant, Robert A. Keeton (3416 Stuart Ave., Richmond 21, Va.). Bob works for the Richmond *Times-Dispatch*, and because of his interest in model boating, has been instrumental in getting several big feature articles on the hobby in his paper. He is an avid R/C fan himself, and has been operating an ATH Sea Scooter fitted with Cub .099 engine, with fine results. Because of the blunt bow on this craft, he has acted as retriever for quite a few stranded model boats; the bow will hold to the side of the derelict and slowly push it in to shore. Largest craft retrieved by these tactics has been a Sterling Chris-Craft 63-footer. Bob has tried to claim salvage on a few of these rescues, but so far to no avail.

From Sperry, Okla., we hear of model boating through Robert E. Vickery, who says he has built two ships so far, a scale 63 ft. Motor Yacht and a Slo-Mo-Shun IV. The former is a Sterling kit job powered with Pittman 9002 motor driving twin screws. Rudder is controlled by Berkeley radio equipment. Next project is a Sterling 42 ft. Corvette, which will be fitted with a Cameron .09 marine engine and Bob hopes to put in multi-channel R/C, so that he can steer the boat and have forward, reverse and speed control. An ambitious undertaking. He wants to know how to get in touch with the I.M.P.B.A., as he wishes to join this organization. The full name and address is International Model Power Boat Association, 2991 Garland Ave., Detroit 14, Mich.

Another international outfit that is of interest to some model boatmen—the R/C enthusiasts—is the International Radio Controlled Model Society, originally formed in England, but now with branches in many countries. This group puts out a most interesting Bulletin about four times a year, and while the Society takes in all those interested in any form of R/C, most of the info in the Bulletin is on the subject of boats. Dues are very low, and include the Bulletin; American headquarters group is the Pacific Radio Control Society, c/o E. L. Rockwood (Box 6, Menlo Park, Calif.). Recent issue of the Bulletin carried data on model yacht controls.

(Continued on page 65)

**NEW!**

*Chris-Craft*

**"ZEPHYR"**

OPERATING POWER BOAT

**5.95**

WITHOUT MOTOR

**OTHER OPERATING BOATS**

Chris-Craft "Sportsman"—20"—\$6.95

Aqua King Cruiser—18"—4.50

"Angler"—14"—1.50

Sail King Sail Boat—22"—5.95

Sea Weed Sail Boat—18"—4.50

Speed Demon Racer—15"—1.95

Aqua Pal Skiff—17"—1.75

**EXCLUSIVE WELDED-WOOD HULL**

LENGTH 20" BEAM 7 1/2"

DIE-CUT PLYWOOD PARTS

CAST METAL FITTINGS

IDEAL FOR RADIO CONTROL

FOR GAS or ELECTRIC

OUTBOARD MOTORS

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Auto-makers test experimental models today before putting their insignia on your car of tomorrow!

Sooner than you think, the car you drive may have the sleek look of tomorrow you see here! To speed the day, auto-makers build dozens of experimental cars. They test, measure, add improvements.

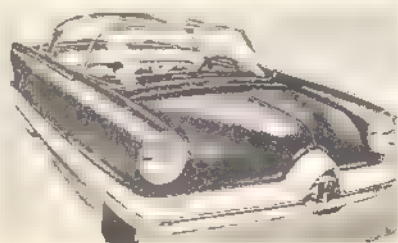
And when tomorrow's production model rolls off the line, proudly wearing the maker's insignia, it will be handsome, efficient, right for your needs.

Because the automobile manufacturer—like the maker of bobby pins, breakfast food or toasters—knows that if his brand name doesn't satisfy you, some other trademark will! So whenever you shop, name your brand—and better your brand of living!

### BRAND NAMES FOUNDATION

INCORPORATED

A Non-Profit Educational Foundation, 37 West 57 St., N.Y. 19, N.Y.



Streamlined hard top has doors that curve up into roof, making it easier to enter and leave. Note how bumper circles car completely.



American-designed, this new model was hand-crafted in Italy. Chrome-plated wire wheels add style, help cool brakes and tires.



## BUILD A REAL SCALE SOLID MODEL AIRPLANE



Here are real scale models worthy of the name, not a few pieces of plastic that stick together in 5 minutes and look like a dime store toy. Fully carved fuselage, shaped wings and empennage—jampacked with metal castings—every item that can be reproduced—is given to you.

P-51 Mustang	\$2.75	P-51 Mustang	\$2.75
F4U Corsair	2.75	P-51 Mustang	2.75
P-51 Mustang	2.75	F-84 Subjett	2.75
FW-190 Focke Wolf	2.75	F-80 Shooting Star	2.75
P-47 Thunderbolt	2.75	British Spitfire	2.75
P-38 Lightning	3.50	P-47 Thunderbolt	2.95
ME-109 Messerschmitt	2.75	F-84 Thunderjet	2.75
MIG-15	2.75	F-82 Twin Mustang	3.50
		P-40 Warhawk	2.75

### 17" INBOARD CHRIS-CRAFT SPORTSMAN

**\$4 95**



One inch scale. Here is a flashy, fast and rugged inboard, super de luxe in appointments. Easy to build, with completely carved hull, die cut mahogany deck and plastic windshield. 26 beautiful metal fittings: windshield brackets, steering wheel, clutch handle, stern light, boat hook, fire extinguisher, propeller shaft, stuffing box, step plates, hoisting rings and working anchor. All you need is your engine and fly wheel.

### LAYTON SKIFF

**\$7 95**



Here is a big, inexpensive skiff designed for the electric or 1/2 A engines, easy to assemble, complete to the oars. Length 17", Beam 7", Freeboard 3" Die cut Balsa construction. Eleven metal fittings including oar lock sockets, oar locks, cleats, chocks, anchor and fire extinguisher.

### OUTBOARD RUNABOUT

**\$3 95**



16 Foot DeLuxe Outboard Runabout designed expressly for the new 1/2 A outboard engines! 16 inches by 6, fully carved and shaped. No other scale kit has ever been so easy to put together, SO PERFECT IN OPERATION. Detail Galleries . . . Chocks, cleats, bow and stern running lights, boat hook, oar locks, fire extinguisher, working navy anchor—15 beautiful metal castings of the kind Dyna-model is famous for.

If no local dealer is convenient, mail orders will be filled. Please include 25¢ for packing and postage. No C.O.D.s.

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## Tech Topics

27693



**LATEST** plane to be equipped with turboprop engines is Boeing's C-97 military transport, designated VC-97J (photo above). Four power plants are Pratt & Whitney T-34s, each developing 5700 hp. This is 63% more power than 3500 hp P & W R-4360s, standard equipment of C-97 Stratofreighters; additional benefit is decrease in plane's weight by almost 5000 lbs. At present, eight types of military airplanes are flying with turboprop power, including a Boeing B-47 bomber with two inboard Wright T-49 turboprops.

**IN COOPERATION** with U. S. Navy Le Tourneau-Westinghouse road building equipment outfit built giant 48-ton crane capable of hoisting 4-engine bomber. Crane demonstrated at Floyd Bennett Naval Air Station, Brooklyn, N. Y., lifted and carried a forty-ton Consolidated PB4Y-2 Privateer patrol bomber . . . Seat belts, long time "must" for aircraft to minimize body injury in event of crash, now getting recognition for use in automobiles. Soon to be available, as dealer-installed optional equipment, are seat belt packages for Chrysler Corp. cars (see photo).

**GENERAL JIMMY DOOLITTLE** selected by FAI (International Federation of Aeronautics) to receive its 1954 Gold Medal, highest international civil aviation award for personal contribution to

aviation progress and development . . . One of many problems faced by supersonic and transonic aircraft in flight is erosion of metal due to rain. Impact of water drops on the material is so high that loss of strength well below safety limits can occur in a matter of seconds, limiting use of aircraft to fair weather flying . . . Navigation device which enables pilot to find immediately how far he is from an airport and in what direction he should fly, developed by Computing Devices of Canada Ltd. New instrument is independent of radio and therefore unaffected by fading and atmospheric effects, and cannot be jammed by enemy.

**INQUIRY** into fatal crash of two British Comet jet airliners became greatest piece of detective work in history of aviation. Metal fatigue proved to be culprit; subsequently, British Air Ministry asked for structural changes in later models. Crashes did not affect market for the airplane and orders for Mark IV are steadily mounting, latest customer being Canadian Pacific Airline . . . Nuclear-powered aircraft development has one of the highest priorities in the Air Force . . . Beech Aircraft Corp. has jumped gun on manufacturers of personal aircraft by closing deal with Morane-Saulnier in France to manufacture in U.S.A. the MS.760 "Paris" 4-place twin jet light transport for executive use. The "Paris," now flying in France, has a cruising speed of 360 mph, is equipped with pressurized cockpit. First model currently on tour through U. S. and Canada. Production depends on interest aroused among potential users and purchase price.




**HILLER HELICOPTERS** developed "Flying Saucer" like vertical lift device consisting of circular platform with railed porch on top. Ducted fans driven by two engines of 100 hp total are enclosed in circular casing of platform. Air sucked in from special duct-holes is thrust downward to produce lift. Pilot standing on top, within railing, changes altitude of craft by shifting weight . . . Test Pilot Bob Rahn of the Douglas Aircraft Co. beat all previous climb records by gaining 10,000 ft. altitude from standing start in 56 seconds during routine take-off in F4D Skyray . . .

# NOW...R. C. PROPELLERS

## any diameter—any pitch

### a TORNADO SCOOP



Diameter	Pitch Stock Items	Price
11	3", 4", 5", 6"	.35
12	3", 4", 5", 6"	.35
13	3", 4", 5", 6"	.45
14	3", 4", 5", 6"	.45
16	3", 4", 5", 6"	.65
18	3", 4", 5", 6"	.85
20	3", 4", 5", 6"	1.25
22	3", 4", 5", 6"	1.80
24	3", 4", 5", 6"	2.50

If you need a special "pitch" R.C. prop not shown on this chart or carried by your dealer, write me. Include name and address of your dealer — Tony Grish.

For planes to 12 ft. wing span.

For engines up to 2-4 H. P.

Made of the finest select hard wood.

**Tornado**  
Propellers

**GRISH BROS. ST. JOHN I, INDIANA**

(Continued from page 63)

problems of an R/C submarine, information on the "Kitchen rudder" which allows forward, reverse, stop, and full steering and speed control of a boat, all without changing direction or speed of the engine, and many other interesting R/C projects.

### "Bitsy"

(Continued from page 26)

The cloth will form readily around compound curves when coated with resin or cement. Sand all roughness from surfaces and apply two or three coats of primer. Finish with synthetic enamel.

The tank is made of a natural rubber ink sac from a fountain pen. These can be purchased from any fountain pen repair shop for about 15 cents. Assemble as shown on plans. Make a tee as illustrated. Drill two holes in a pan—one for the filler tube and one for the filler plug. Bend a plug from 1/4" soft wire and insert through hole in pan. Solder a washer inside to hold it in place. Run a piece of Neoprene tubing from the carburetor jet under the engine and attach to the tee. Run a piece of tubing through the other hole in pan. Make it long enough to reach back to the plug. The tank attaches to the third end of the tee.

I used a 5 1/2" diameter x 8" pitch propeller. My fuel mixture was fairly high powered, 40% nitromethane, 20% castor oil, and 40% methanol. I use a three-wheel, double-pin dolly which works pretty good. Flying this little job is easy if you can keep up with it.

# NEW!

## 3 GREAT MODELS by SCALEMASTER!

### 30" Span BOEING F4B-4 "FIGHTER"

At last! A true scale model of his snappy popular shipboard fighter captured in true-scale as only Scalemaster can. This kit is one of the finest scale models ever produced designed for experienced modelers or beginners alike. This outstanding kit includes "T-D" razor die cut halves over 90 die cut wing ribs and plywood parts. Metal stamped scale fittings, turned cowling, decals, die cut celluloid, embossed rudder and elevator corrugation, shaped leading edge, bent landing gear, dummy engine material, super detailed plans and instructions, and best of all Scalemaster exclusive true-scale, true-style rubber tire wheels. A scale modellers dream. Builds into a 30" span model for any engine .099 to .20. Priced at only \$8.50, including scale wheels.

### 44" Span CURTISS JN-4 "JENNY"

Old timer fans, here it is! An exact scale model of the famous World War I Curtiss JN-4 "Jenny". The big 44" wing span offers you a wide choice of engines. Its rugged construction will give you many hours of accurate and flying fun. It's a snap to build with Scalemaster's "T-D" razor die cut halves over 80 die cut wing ribs and plywood parts. This kit too, includes Scalemaster exclusive true-scale, true-style rubber tire wheels, plus full color decals, metal stamped fittings, shaped leading edge and beautifully detailed plans and instructions, yet easy to follow. Even the embossed louvers for the nose sections are included. See it today, only \$8.50, including scale wheels.

### 42" Span STINSON SR-10 "RELIANT"

One of America's most popular sport and business planes in the \$35-40 era, now available in one of the finest rubber and scale ever produced. Scaled from factory blue prints, this kit offers you a smooth flying model, for scale or sport, and with modifications for free-flight, or R/C W.I. handle any engine from .099 to .25. Finest quality balsa wood used throughout, as in all Scalemaster models, plus "T-D" razor die cut halves and plywood parts. Turned cowling, bent landing gear, decals, covering, hardware, and detail, packed plans loaded with prototype data. See this kit along with the other Scalemaster models at your hobby dealer. Stinson Reliant, only \$9.95.

T-D™ (True-Dimension)

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### ARISTOL LORENZ 3D-2 TUBE RECEIVER

- Designed by E. J. Lorenz
- Uses Diodes & P.G.
- Lowest Tube Idle
- Low Filament Drain
- Kit Price

**\$8.95**



### ARISTO MULTI-TESTER

Designed expressly for R/C Enthusiast! Full 2 1/2" Meter Face. Here's the sturdily built, accurate testing unit covering EVERY R/C need  $\pm 2\%$ ! This is NOT a "reworked" surplus test meter!

- All M.A. readings to 1000 MA - Moving coil type meter
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- Black and Red Test Leads with prods supplied
- High-impact, strong, black plastic case.

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### ARISTO-REV MOTOR

as described by McEntee & Lorenz

- Leads 0.5 V.A. 2 1/2" - Ball Bearing - Max. Diam. 1" - Wgt. 2 1/2 ozs. - Carbon Brushes 4800 R.P.M. on 3 Volts or double R.P.M. and power on 4 1/2 Volt. Amazing 1/100 Amp. drain. Approx 40 hours on 2 Pencil cells. New Low Price...

**\$2.95**

### E.D. Boomerang



- Longer tube life
- Antenna NOT critical
- Range exceeds 1 mile
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**RECEIVER  
AND ESCAPEMENT  
\$29.50**



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**E. D. Aristol Unit Complete  
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### CLOCKWORK ESCAPEMENT

Ideal for marine use, self powered with an enclosed spring wound motor. For 2 or 4 position operation. Wt. 9 oz.



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### BEST R/C ENGINES

#### MILLS 1.3 CC SPECIFICATION

- Displacement: 1.33 c.c. (.081 cu in.)
- Bore: .408 in.
- Stroke: .025 in.
- Weight: 3 1/2 ozs.
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- Power ratings: .07 B.H.P. per c.c.
- Max. torque: 12.4 oz.-in. at 5,000 - 6,000 r.p.m.

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### COMPETITION SPECIAL

**.12 DISPLACEMENT  
WITH CUT-OFF**

3" high, 4" long, 1 1/2" wide. Can develop 1/2 HP Total wt. incl. prods. 6 1/2 oz. Thrust 16 to 18 oz. Bore 1/2", Stroke 3/8", 6,500 RPM For planes with 3 to 5 ft. span.

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**SUMMER PLAN SPECIAL: SAVE \$6  
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## CALENDAR of HOBBY MODEL MEETS and SHOWS

CALIF—Travis AFB, July 11-16. Air Force World Wide Championship air-model contest for USAF personnel.

OHIO—Cleveland, July 10 & 17. Junior Air Races. C. L. Tracy, The Cleveland Press.

OHIO—Greenville, July 17. Jaycees air-model meet. Fritz Dittmer, Box 195.

WISC—Kohler, July 17. Sheboygan Modelers air-model meet. W. A. Lea, 1030 N. 14th St., Sheboygan.

CONN—Hartford, July 17. Greater Hartford MAC team racing air-model meet. C. J. Gallagher, 47 Church St., E. Hartford.

MICH—Detroit, July 17. IMPBA model boat regatta. Charles Baxmann, 2991 Garland Ave.

FLA—W. Palm Beach, July 17. Model plane U/C show. J. C. Temple, 510 Clematis St.

CALIF—Long Beach, July 18-24. National Championship Model Airplane Contest at Los Alamitos Naval Air Station. Academy of Model Aeronautics, 1025 Connecticut Ave., N.W., Washington 6, D.C.

ONTARIO—Toronto, July 20. IMPBA model boat regatta. Robert Johnson, 228 The Kingsway.

OHIO—Akron, July 23. AMRCA night model car race. Guy Richards, 3353 Magadore R., Magadore.

ILL—Chicago, July 24. CMPBA model boat race at Marquette Pk. J. R. Mathews, 10451 S. Parnell Ave., Chi. 28.

IND—Newcastle, July 24. AMRCA model car race. Russell Harter, 205 S. 20th St.

MASS—Norwood, July 24. NSME air-model meet. A. L. Trefethen, 164 Oakdale Ave., Dedham.

WISC—Milwaukee, July 24. Flying Electronics R/C air-model meet. V. R. Weissbrodt, 2100 E. Webster Pl.

ILL—Harvey, July 24. R/C Club of Chi's air-model meet. R. E. Webb, 1303 W. 79th St., Chi. 20.

D.C.—Washington, July 24. R/C air-model meet Herb Honecker, 8105 Tahona Dr., Silver Spring, Md.

MICH—Detroit, July 24. IMPBA model boat regatta. Charles Baxmann, 2991 Garland Ave.

WISC—Fond du Lac, July 24. Air-model meet. B. A. Zuehlke, 385 E. 18th St.

PA—Bristol, July 30-31. Aeromodelers Eastern States hydro championships. A. E. Abrams, Jr., 1031 Pond.

TENN—Knoxville, July 31. State Exchange air-model meet. P. C. Greenwood, Box 8260.

FLA—Lake Worth, July 31. Cloud Busters' air-model meet. F. T. Kerr, Jr., 3628 S. Dixie Highway, W. Palm Beach.

S.C.—Spartanburg, July 31. A.B.C.-Sky-Knights air-model meet. C. H. Hutchins, Box 403.

TEXAS—San Antonio, Aug 6 & 7. Regional air-model meet. C. C. Perkins, 235 W. Drexel.

MD—Baltimore, Aug. 6 & 7. IMPBA model boat regatta. Andrew Bailing, 910 Cooks Lane.

ILL—DeKalb, Aug. 7. Cloud Busters' air-model Flying Circus. Dutch Hess, 137 1/2 E. Lincoln.

ILL—Chicago, Aug. 7. IMPBA model boat regatta. Roger Mathews, 10451 S. Parnell Ave., Chi. 28.

ALBERTA—Edmonton, Aug. 7. Annual air-model meet.

at Napa airport. R. G. Moore, Model Aeronautics, Box 4337.

N.Y.—Staten Island, Aug. 7. Metropolitan air-model championships at Miller AFB. Sal Cannizzo, 293 Maryland Ave., Staten Island 5.

MD—Frederick, Aug. 7. Exchange air-model meet. E. E. Champlin, 1002 Rosemont Ave.

MASS—Boston, Aug. 7. Aero Club's air-model meet. E. G. Dolby, 25 Exchange St., Rockland.

CONN—Wallingford, Aug. 7. Meriden Model Maniacs' air-model meet. C. A. Orrill, Jr., 47 Carpenter Ave., Meriden.

IND—Anderson, Aug. 11-13. AMRCA miniature race car national championships. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.

CALIF—Arcadia, Aug. 14. Air-model team racing. Les McBrayer, 1238 1/2 S. 2nd St., Alhambra.

MICH—Detroit, Aug. 14. IMPBA model boat regatta. Charles Baxmann, 2991 Garland Ave.

OHIO—Alliance, Aug. 14. Exchange air-model meet. Edward Cross, 23 E. State St.

MASS—Beverly, Aug. 14. N.E. R/C air-model championships. J. K. Ross, 23 Lantern Lane, Wellesley Hills.

IND—Indianapolis, Aug. 14. Mid-States air-model meet. R. C. Rhein, Allison Div., General Motors Corp.

N.J.—Haddonfield, Aug. 14. Hi-Way Glo-Bugs' air-model team racing. George Molr, Main St., Mantua.

N.C.—Winston-Salem, Aug. 20 & 21. Free flight air-model meet. Loyd Hathaway, Recreation Dept., City Hall.

MICH—Detroit, Aug. 21. Air-model meet. W. E. Bartlett, 14515 Asbury Park.

OHIO—Toledo, Aug. 21. AMRCA model car race. Carl Noward, 1384 Berdan Ave.

WISC—Manitowoc, Aug. 21. Air Pirates' air-model meet. W. A. Lea, 1030 N. 14th St., Sheboygan.

N.Y.—Plainville, Aug. 21. Screamin' Demons L.I. championships. L. C. Walker, 17 Brookdale Dr., Bay Shore.

IND—Kokomo, Aug. 21. Air-model championship. J. C. Braun, 106 E. Gano St.

ILL—Danville, Aug. 21. Jaycees' state air-model championships. Dick Grack, 17 W. Main.

ONTARIO—Toronto, Aug. 27. IMPBA model boat regatta. Robert Johnson, 228 The Kingsway.

COLO—Grand Junction, Aug. 28. Exchange air-model meet. R. D. Mulford, 379 S. Redland Rd.

ILL—Belleville, Aug. 28. AMRCA model car race. Charles Flynt, 1014 E. McKinley.

ILL—Chicago, Aug. 28. Model boat race of CMPBA. J. R. Mathews, 10451 S. Parnell Ave., Chi. 28.

CALIF—Los Angeles, Aug. 28. Air-model free flight scale contest. R. E. Moncrieff, 2108 Santa Fe Ave., Torrance.

WASH—Seattle, Aug. 28. IMPBA model boat regatta. E. W. Drouillard, 141 N. 85th St.

ILL—Marion, Aug. 28. Lions' air-model meet. E. H. Aikman, 1020 N. Market St.

ILL—Harvey, Aug. 28. R/C Club of Chicago air-model meet. R. E. Webb, 1303 W. 79th St., Chicago 20.

## What's in the Name . . . Wright-Patterson AFB?

(Dayton, Ohio)

This huge installation, nerve center of the Air Force, where every future military airplane and device is thoroughly tested before it is accepted and where new ideas are tried and developed, is actually two airfields which have so expanded in recent years that they run into one another. The present Wright section is an outgrowth of old McCook Field. It took its name from Gen. Anson McCook and his seven fighting sons of Civil War fame. On October 12, 1927, the tract was renamed Wright Field in honor of Dayton's celebrated native sons, Orville and Wilbur. Patterson Field came into existence in 1917 as "Wilbur Wright Field," boasting of two hangers and a handful of frame buildings. It was from this little dirt strip that Lt. F. S. Patterson took off on June 19, 1918, to test a new machine gun synchronizing invention. The device failed and bullets shattered the propeller, causing the plane to crash. Lt. Patterson died in the accident.

List your hobby club's public shows, exhibitions and contests here! There's no charge. Advise "ATH" not less than 90 days in advance. Give telephone of contact man if possible. Send to "Calendar," c/o Air Trails HOBBIES, 304 E. 45th St. New York 17, N. Y.

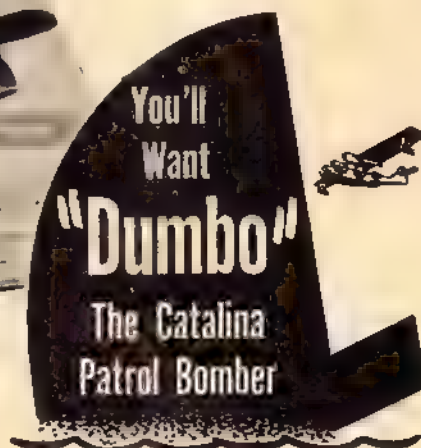
Address of contact man is in the same city as site of event unless otherwise specified. This publication does not assume responsibility for any errors in listing.





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action-picture boxes in your  
favorite hobby store



### Now 3 All-Plastic Twin Engine Bombers! Get Them for Authentic Multi-Engine Realism!

It's ready now fellows—good old "Dumbo" the PBV-A5 Catalina patrol bomber we promised you. It's a companion kit to the B-25 Mitchell and B-26 Invader. Get a kit today. What fun you can have with these three. Park them on the "strip" and check. Authentic landing gear, rubber wheels, crew visible through

the transparent "greenhouses," flashing, colorful insignia and markings, and complete armament including machine guns, cannon, rockets, torpedoes, etc. Go to your dealer. If none near you order from address below. Include 25¢ extra for postage and packing.



**Monogram Models INC** 3421 West 48th Place • Chicago 32

## Under Control?

(Continued from page 15)

5-tube receiver is in one unit, and three Neomatic relays together with all batteries are built in another unit. Two tiny magnetic actuators work rudder and elevator. The third D-S Proportional job was a big cabin plane by Bob Trainer, which has an entirely different—and somewhat simpler—control system, but which also showed what can be done with this most realistic form of control.

The DC/RC now has an official membership of 58; those interested in joining may get full data on the club from Secretary Bill Saks (6811 Fairfax Rd., Bethesda, Md.). Since there is much engineering talent in the group—they have representatives in almost every Government and private lab in the area—there are some really hot circuits and control systems in the design and operational stage, but beginners are just as welcome as hotshots.

**Technical Matters.** Reports are starting to come in on use of the Tuned-Relay receiver. Jim Fronkier (Box 326, Coffeyville, Kans.) has one going and seems to be having fine results; says he had to use a bit different condensers across the relays. It must not be overlooked that all commercial parts have a fairly wide tolerance, so a little experimentation might be required, though we did not find any part very critical, with the possible exception of the resistor R1, which should really be picked for best results with each receiver.

Large-size-model enthusiasts sure have their problems getting ready-made props that are big enough, but we hear from

Miles Wilson (819 E. 41st Ave., Spokane 36, Wash.) that Tony Grish can supply them in 16, 18, 20, 22, and 24 inch lengths, and in 3, 4, 5 and 6 inch pitches. Miles says they are beauties and just right for R/C. It is likely that they won't be stocked by most hobby stores for the present, but you can probably get them from the makers; write direct to Grish Brothers (St. John 1, Ind.), who manufacture the Tornado line.

**Proportional actuators** for elevators have been a problem, most builders having the idea that a big powerful unit is required. We learn from Paul Johnson (1500 Arthur Ave., Des Moines 16, Iowa) that it doesn't take as much power as you would think; he has an ATH Hollinger Cub fitted with a "Mactuator" design, but it is much smaller than the one shown in the November issue. A  $\frac{3}{8}$ " x  $\frac{1}{4}$ " magnet is used and coils are  $\frac{7}{8}$ " long x  $\frac{3}{8}$ " dia., with 13 ohms each, and all core strips came from an old transformer (this metal is usually about 1/64" thick). Elevator is balanced; tips project forward of the hinge line, and from Paul's sketch there appears to be about 15% aerodynamic balance. Lead weights are used to give perfect static balance, and the actuator gives fine results on 4½ V.

We are coming to the belief that actuators are being built much too large and heavy and this seems to confirm it. We had queried Paul on that hard tubetone receiver shown in this Column in May '55 issue; other experimenters with this type of circuit had mentioned that they got an unwanted blip in the AF relay, whenever the carrier was keyed. Paul had the same thing and wasn't able to get rid of it. He points out, though,

that this extra blip means nothing with proportional systems, and even with most escapements it won't cause trouble, since the unwanted signal is not held (the escapement would just rotate to another neutral, unless it was of the 4-arm type).

A real giant among "model" planes is being built by Earl Lombard (51 N. College St., Washington, Pa.) and Bill McBride. They are making a one-quarter scale model of the Stinson Reliant—the type that was used by Richard Dupont's All American Aviation air mail pickup; model is 14 ft. span, will weigh about 20 lbs. when finished. Builders are hoping the C.A.A. doesn't get too much interested in their project. Pictures of the framework and the covered model were unfortunately not good enough for reproduction, but progress is being made and we wish them well in this ambitious undertaking.

**Commercial Products.** Citizen-Ship Radio Corp. (Indianapolis 20, Ind.) informs us that they will no longer make their LR receiver for 27½ mc. Its place will be taken by their new PLR, which is the ready-built version of the PR-27 kit receiver. PLR will sell for \$24.95, while same set in kit form is \$19.95. Both are identical in construction and operation—feature printed-circuit base plate, 3V4 tube, Sigma 4F relay. C-R Radio has obtained AMA permission to reprint the R/C Precision Pattern on adhesive-backed paper; perfect to attach to C-S or other transmitters to help you follow Pattern in practice or contests. Copies may be had free by writing to concern at above address.

(Continued on page 71)



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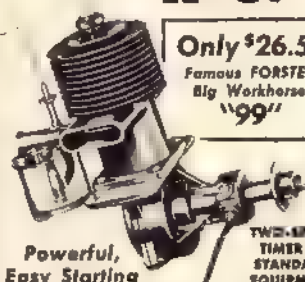


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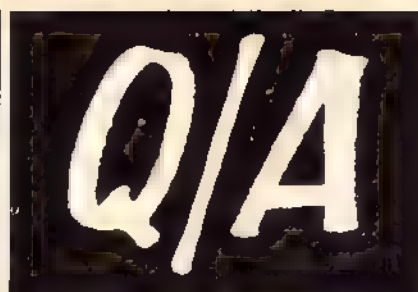
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**What's your question? You  
ask 'em and ATH's Experts  
Advisory Board will do its  
best to supply the answers**

Qu'est-ce que ça? . . . Some time ago I heard mention that in 1920 an aviation firm called EST, located at College Point, L. I., built a giant tri-motor freight airplane. Do you have any details of it?

*Jim Blaine, Des Moines, Iowa*

● Sorry, we have no record of the EST company. Nearest to it, at that



Not the "EST" but the "OWL."

time, was the Empire State Aircraft Co. However, the L.W.F. Engineering Co., located at College Point, L. I. in 1920 built a tri-motor, all-wood Model "H" plane for Army called "Owl."

Four For Piper? . . . Did Piper ever build an all-metal four-place cabin monoplane like the Bonanza or the Navion?

*R. Johnson Louis, Washington, D.C.*

● Yes. In 1946 Piper Aircraft Corp. built a very neat-looking four-place all-metal personal plane called the Skysedan; it was powered by a 165 hp Continental engine. The project was abandoned because of high cost of production which would have made the plane too expensive. Piper was aiming at the below-\$10,000 price.

Crash Boat . . . The other day I heard a couple of sailors talking about a "crash boat" that they went out on when an airplane came down in the bay. Is it a special boat?

*Harvey Summers, Brooklyn, N.Y.*

Not quite under \$10,000.



Waterborne rescue crew.

● The "crash boat" is usually a fairly large, fast boat, not unlike the old-time sub-chaser, equipped with emergency tools and carrying medical personnel among the crew. It is kept in constant readiness when there is flying going on at an air station located near water. Its job is to rescue flyers in event of a forced landing in the water. Shown here is a Coast Guard crash boat on such a simulated mission. At water's edge fields the Air Force usually maintains own "navy."

Noisy Question . . . Saw a photo of the old Convair L-13 liaison plane; noticed a large bulge just below the nose of the airplane. Is it carburetor?

*Howard Abels, Savannah, Ga.*

● No, the bulge you describe houses the oil radiator. Because the airplane climbed very steeply and was built to fly slow, cooling became a problem. Besides lubricating the engine oil also helps to cool it, so it is important to



Cool customer for hot pilot.

keep its temperature down to a safe figure—hence the "cooler" arrangement.

Seaborne Spits . . . We got quite an argument going on around here whether RAF Spitfires fighters operated from British carriers during World War II. Can anybody tell us?

*Charles Adams, Chicago, Ill.*

● Spitfires equipped with folding wings, arrestor hooks and catapult spools were operated by the British Naval Air Arm from carriers. These airplanes were designated "Seafires." Shown is an early version of the Seafire, probably a Mark II, on board an English carrier.

Back to Normal . . . When a plane makes a belly landing, how is it raised in order to get it back on its wheels? *Curley Klingmann, New Orleans, La.*

• There are a couple of methods to handle planes which have landed with their gears retracted. A special giant crane specifically built for the purpose can raise the airplane high enough to permit lowering the landing gear, or deflated rubber bags are placed under the wings and pumped up with air until they lift the plane sufficiently high so gear can be lowered.

Give Pete a Brake . . . My friend Pete Johnson and I had a big debate. He says that dive bombers dive on a target at terminal velocity, I say he is wrong and that they use dive brakes. Can you straighten us out?

Scott Campbell, Chelsea, Mass.

• You are correct. To prove it, we



And this little Spit went to sea.

show a photo of the Curtiss SB2C-4 Helldiver in action. Note the perforated dive brakes extended. (Holes in dive brakes are to prevent tail flutter.) If the plane dives too fast chance of miss is much greater.

Foreign Boeings? . . . Did any foreign airlines ever use Boeing flying boats?

Jeffery McCoy, Oakland, Calif.

• Yes. The B.O.A.C. (British Overseas Airways Corp.) had several Boeing "boats" in service in the early "forties." Shown is one moored in a lagoon at Lagos, Nigeria, Africa.

What's Wrong with Learning? . . . You might think I'm stupid for asking such a question, but I just couldn't help it. What is the purpose of superchargers and how many different kinds are there?

Mike Watson, Denver, Colo.

• The supercharger is essentially a compressor or pump which supplies air to fuel at a higher density. This increase in density gives more power and also permits engine operation at higher altitude by preventing starvation of engine due to lower air density at higher altitude. There are two types of superchargers, those mechanically driven from gears and turbo-

Com'on, get up on your own legs.



Hole-y satisfactory answer.

superchargers operated by engine exhaust gases.

That Friendly Argument . . . A friend and myself are having a little argument. He says that the Piper concern put out a biplane. I say they never did. Which of us is correct?

John Broadley, Norwood, Mass.

• You are. Piper has never brought out a biplane. All their aircraft have been monoplanes.

Data on Corsair . . . I would like to know these things about the F4U Corsair: speed, rpm, armament, engine make and weight, and length and wingspan.

Robert E. Ames, Portland, Ore.



Boeing via B.O.A.C.

• Wingspan of the Vought Corsair F4U-5 is 41 ft., length 34'6 1/4". Armament is four 20-mm cannon in wings. Gross weight: 13,300 lbs.; engine: 2400 hp Pratt & Whitney R-2800.

P-47D in Color? . . . I have just about completed a scale model of the P-47D, but I have been unable to find out what colors they are being painted by the Army now.

Melvin Dicker, East Elmhurst, N.Y.

• None of the Air Force airplanes is painted. They are of natural aluminum color with either black or dark green anti-glare patches.

Airacobra Facts . . . I would like to know when and in what country the P-39 Airacobra was used, the caliber of its wing guns and nose gun.

Roy Morris, Dallas, Tex.

• A number of P-39 Airacobras were lend-leased to Russia during World War II. Armament consisted of a 37-mm cannon firing through the prop hub, two caliber .50 machine guns in nose and two caliber .50 machine guns under the wings in small streamlined housings.



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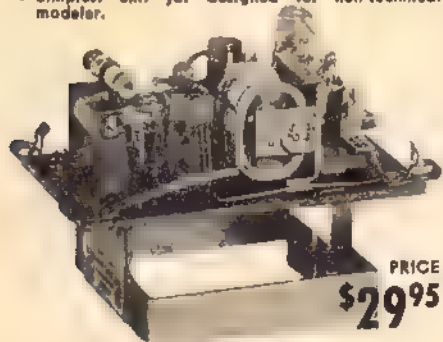
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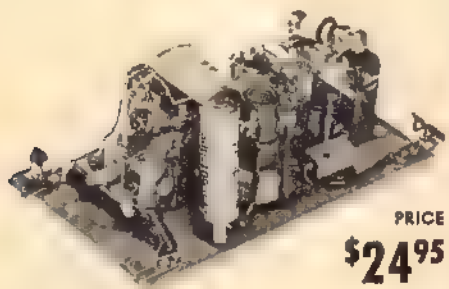
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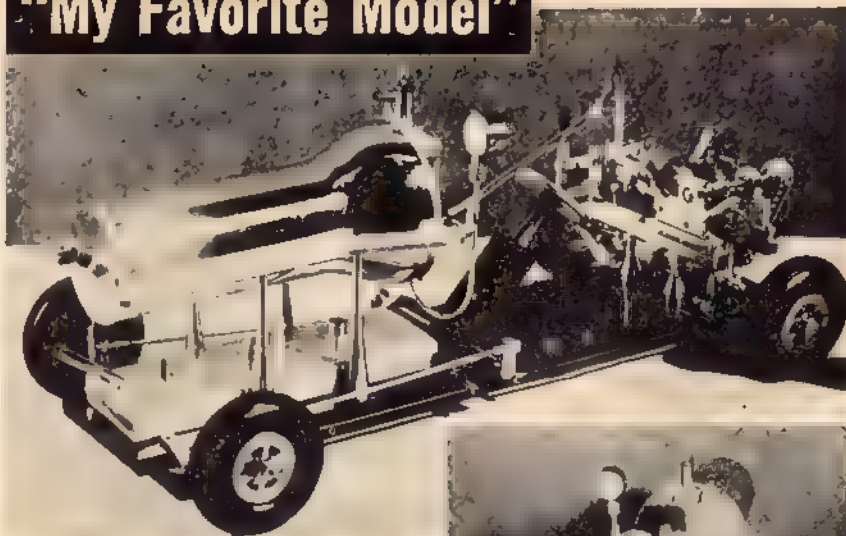
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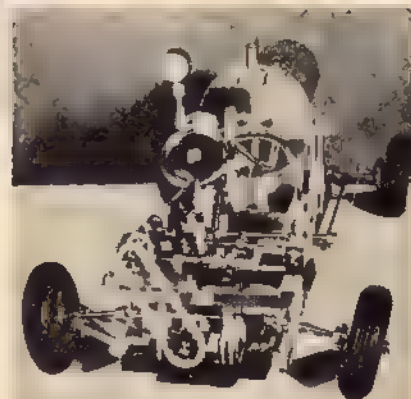
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## "My Favorite Model"



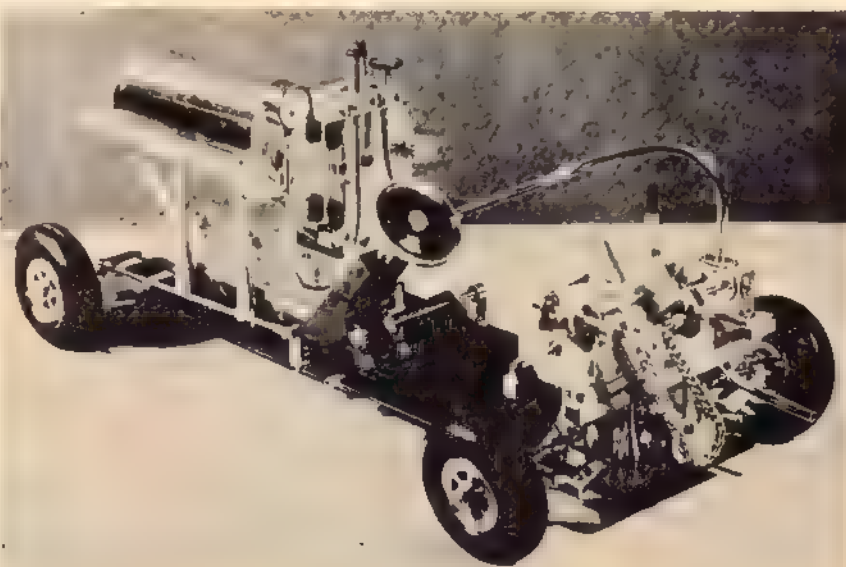
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"This model steam car," reports R. D. Rego of Rochester, N. Y., "has taken approximately one year of my spare time to complete and has the following specifications: Boiler is fabricated of seamless drawn brass tubing and chromium plated, then fitted with pressure gauge, water-level glass, relief valve and throttle. It is alcohol fired and has a normal pressure of 50 p.s.i. The engine is of the twin-cylinder, oscillating type,  $\frac{3}{8}$ " bore an  $\frac{1}{2}$ " stroke. It is capable of instantaneous reversal and is equipped with a reduction gear having a ratio of

30 to 1. The final drive to the differential bull gear is through chain and sprocket. The wheels are individually sprung by  $\frac{3}{32}$ " diameter torsion bars, with swing-axles employed at the rear. Wheels have center locking, racing type hubs and the tires are semi-pneumatic. Steering ratio is 10 to 1, wheelbase  $10\frac{1}{2}$  in., tread 6 in., front and rear."



Do you have a favorite model? Tell us about it and include some good clear photographs (black and white only, please—no color). Send your entry to: My Favorite Model Dept., c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y. We will return any

contributions not used, but cannot assume responsibility for them (don't send negatives unless requested). We pay \$25 for photo(s) and story that appear here. Any type of model is eligible, working or non-working, plane, boat, car, etc.

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## Under Control?

(Continued from page 67)

We are asked to call attention to fact that Aristol Lorenz 2-tube receiver advertised by Polk's Model Craft Hobbies (New York 1, N. Y.) in June issue was not a gold-plated version! Price should have been \$8.95 for the kit (less tubes and relay) rather than the \$18.95 listed.

Ace Radio Control (Box 301, Higginsville, Mo.) has RCA closed-circuit phono plug for 25c each, also Telex sub-min jack for 36c and matching plug for 50c. Ace will also probably have moderate cost toroids for the A. F. enthusiasts. Available by the time this reaches you will be first sheets of Ace Data Service Library, covering "Improved 2-tube Receiver," "Simple Audio Conversion" and "Simple Relaxation Oscillator Modulation." Sheets will be complete with circuits and instructions, will be in offset printing and sell for about 10c each. Others will be added as soon as they can be prepared.

Unique miniature electric clutch may be had in several forms from Electronic Mfg. Engineers Co. (2410 Beacon St., Seattle 44, Wash.). Model 523 is for 6 V., has holes for 1/4" shaft, and universal joint on one end. It weighs .9 oz., measures 1" long x 7/8" dia., draws only 200 ma. and has very strong pull. Winding is inside clutch, with current carried to it by slip rings and brushes. Unit is made in other styles and windings, should have interesting applications in R/C vehicles and boats.

Although it is designed for entirely different uses, this unit may prove most useful to the hobbyist. Concern offers bulletin on these units; Model 523 men-

tioned above lists at \$6.25.

New receiver called the "Cascade-Quad" is listed by Electronic Specialty Supply Co. (58 Walker St., New York 13, N. Y.), and kit costs \$18.95 with relay and tubes. Finished receiver is \$23.95. ESSCO also has conversion kit to enable owners of standard Lorenz 2-tubes to convert them to new circuit; kit sells for \$3.45, produces receiver in which gas tube idles at .2 ma., giving longer life for this tube, and increased overall sensitivity. Concern stocks new Arco sub-miniature mica condensers in several values; these are ideal for use in critical circuits, come in values up to 150 mmf. A miniature electric iron called the Wall Thermostatic will be priced at \$4.95; has replaceable tip about 1/4" diameter, and quick-heating features, is perfect for sub-miniature construction work. ESSCO also has new sub-min quench coil about half the weight of their standard unit.

Control Research (Box 9, Hampton, Va.) offers data sheets on various phases of R/C, for 10c each. Available now are sheets on several transmitter and receivers, and on meters. Other sheets are being prepared. They also offer free data sheet on Half-A R/C, giving a great deal of most useful info on conversion of various small planes to R/C, including weights, batteries to use, engines, wing loading, etc. All these data sheets are well-illustrated. C.R. now has very potent Alnico 5 disc magnets in 3/4" x 1/4" with a 3/32" center hole; selling for \$1 each, these discs are much stronger than alnico 2 discs of this size that C.R. has carried in past. Alnico 2 discs in 3/4" x 1/4" will still be available, at 35c each.

New booklet describing the various Multi-Servos made by deBolt Model

Engineering Co. (Williamsville, N.Y.) may be had for 25c. Most helpful, since concern will soon be making eight different models, and there has been some confusion as to just what each one was intended for. Models 2PN, 3PN, 2P2N and 3P were being shipped as this was written, while model 5PN—made especially for boat or car use—was scheduled for June 1st delivery. The MCE and MCR multi-channel units were expected to become available by about July 1st.

Third in series of reprint books of R/C material that has appeared in ATH is now being sold by Hobby Helpers (770 Hunts Point Ave., New York 59, N. Y.) for 50c. It is Collection #3, "Commercial Radio Control Equipment for the Model Builder," has circuits, pictures and specifications on thirteen different receiver-transmitter combinations, as well as several construction and general information articles on R/C. There are 24 pages and cover is of heavy paper. A worthwhile addition to your R/C library.

New Sigma Series 11 relay made by Sigma Instruments, Inc. (Boston 58, Mass.) is expected to be available from your R/C dealer in the fall. Rugged little job weighs only an ounce, will be made in resistances from 4 to 9,000 ohms. Contacts are silver and adjusted by bending. 5,000 ohm unit will retail for only \$2.25, with other resistances in proportion. 5K relay works very nicely in range of 1.5-2 ma. As with other Sigma products, sales will be only through dealers, not direct.

Anyone looking for a potent source of electrical power in a very small package should investigate the Yardney Model HR-01 rechargeable cell. Nominal rating

(Continued on page 73)



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This Canadian club is open for membership to all from the age of 12 years up. Only requisite is genuine interest in modeling. Activities now expanded to include power boats and race cars. Members build and fly gas, rubber power, towline gliders and team racers. New members welcome. Contact man: Ed Flanagan, 31 Memorial Park Ave., Toronto.



Founded years back, in the days of "Brown Jr.", the club consists of 16 members, all interested in every phase of model flying. Each June, the Hawkeyes hold a free flight contest which attracts participants from states as distant as Nebraska. Four members work for Collins Radio under Dr. A. Lipisch, and hence deltas are occasionally in evidence.



The Flying Fools of Danville, Ill., is an organization of control line enthusiasts and according to the club's insignia addicted to speed flying. Unfortunately, further information on their activities is not given in the letter. Meets every Monday night. Club officers are: Ronnie Byers, president, Richard Goodner, vice-president, B. Kimball, secretary and treasurer.

Send your club insignia—with info on your group. ATM will pay \$10 for each emblem and report used here. Type data and send only printed emblems or decals—no pencil or rough sketches can be used.



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## Under Control?

(Continued from page 71)

is 1/10 ampere-hour, though it is actually closer to a 1/5 AH unit, and cell measures  $1\frac{1}{4} \times \frac{5}{8} \times \frac{3}{16}$ " thick, and weighs 1/6 oz. Cell will furnish continuous current of 500 ma. and peak current up to 2 amps., sells for \$6. Available only from Yardney Electric Co. (40 Leonard St., New York 13, N. Y.); this concern has many other larger cells, quite a few of which are in use in the model R/C field.

Furlong Model Airplane Products Co. (Furlong, Pa.) will have a 2-speed valve for R/C engine control priced at \$2.95. Valve is designed to work from such units as dmeco Multi-Servo, for switching between 2 needle valves. Furlong also makes a contra-rotating gear box for \$17.95, and have several sizes of shaft extensions for  $\frac{1}{8}$ " shaft engines; these can be had in either aluminum or steel, and in  $1\frac{1}{4}$ " and  $2\frac{1}{4}$ " extensions, and all sell for \$1.50 each. These products will be sold both direct and through hobby dealers.

An audio tone receiver and matching transmitter are being produced by CG Electronics Corp. (305 Dallas St., N.E., Albuquerque, N. M.) for single-channel operation. Transmitter is Model T-12, is of the hand-held style, and lists for \$31.95. Receiver model R-1 is a 3-tube weighing  $3\frac{1}{2}$  oz. less batteries, comes with relay, tubes, plug and socket. It sells for \$26.95. This concern has an extensive line of other R/C equipment, both single and multi-channel, all of which is available through hobby shops,

## Antique Pistols

(Continued from page 35)

screws and allow you to remove caked and dried grease and rust more easily. At this point it is time to say that one of the prime ingredients of this job is patience, and lots of it!

Having finished the soaking, we will disassemble the gun. An important tool to have here is the proper size screwdriver. Be sure that the blade of your screwdriver fits the screw slot tightly and is the same width. The heads of screws can be very badly chewed up by the use of a screwdriver that is either too large or too small.

Unless you are thoroughly familiar with the mechanism of the gun you are working on, be sure that you understand how it came apart and keep the parts and screws in order. Don't attempt to remove the barrel of a gun in those cases where it is screwed into the main frame. This is a job for a skilled gunsmith and most experienced collectors won't attempt this operation. After the gun is disassembled we can begin cleaning it.

If you hold any parts in a vise during cleaning, be sure that the vise jaws are covered with sheet lead, rubber, leather, or wooden pads of some kind to protect the gun from marring. Use a wooden or lead mallet for any hammering to loosen parts. Always drive pins out with a brass drift pin.

Interior parts may be cleaned with a very fine grade of emery cloth or fine steel wool. I have found that a .22 caliber brass or bronze wire brush is very handy in cleaning out screw holes, and an old toothbrush will get a lot of dirt

out of tight corners. The exterior surfaces of the gun should be cleaned carefully with fine steel wool only. Be careful not to remove any traces remaining of the original bluing or plating and don't polish the metal surface brightly unless the gun was made that way.

The bore of an old pistol or revolver may be brightened up considerably by driving plugs of coarse and then fine steel wool through with a ramrod. This is another job which requires lots of patience.

Those wooden grips on our Remington are in exceptionally good shape, so we need only wash off the surface dirt with soap and water. Several applications of linseed oil will then bring up the fine patina of the wood. If the wood on your gun is in very bad condition, refinishing may be in order. First sand the surface gently to remove the dirt. Dents may be raised by applying a wet blotter and hot soldering iron to the wood, steaming it well. Wetting the surface of the wood with a rag and then drying it rapidly over a flame will bring up the grain, whereupon you can sand it gently; repeat the process until a smooth surface results. If the grips are cracked, use a good wood glue and then finish-sand. Pour linseed oil over the grips and let it soak in until the wood will take no more. Rub in oil with your hands occasionally over a period of several weeks until the desired finish is attained.

If your gun has parts broken or missing you would do well to scout around some of the dealers for replacements. Such dealers as Francis Bannerman & Sons in New York, the Serven Gunroom in Santa Ana, California, and C. H. Weiss in Arlington, Virginia offer catalogs of antique arms parts which they carry.



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## Model Car News

(Continued from page 17)

mite. Walt wrote that he and his friend Jack Smith are eager to run again and they have Hornet-equipped Dooling cars ready to go; they hope to join the Bethlehem club. Walt also asked to be remembered to his former racing mates Charlie Noll, Tom Ash, Charlie Miller, Howard Fox and Jim Petrakis; the latter two are still very much active but Noll, Ash and Miller have been out of circulation for some time. Walt and Bob would like to hear from them.

Bob emphasizes that anyone wishing to join the Bethlehem group is more than welcome; members don't have to live in that city, nor even own cars to qualify for membership. The club has some ready-to-run cars priced at about \$50, and plenty of members with the know-how to aid the tyros. Just drop Bob a card at the address given above.

Another correspondent wrote Bob from Patuxent River NAS, in Maryland, requesting cars and parts; he is James Chase, who not long after visited the home of Howard Fox; seems he has five cars (including an old Dooling Frog) and providing he isn't transferred to some distant spot, wants to race at the Bethlehem track, which is the nearest to his Station—but still a 150 mile trip.

We have received a plea from Jim here at ATH, saying that he is trying to locate a top-half body shell for his Railton Jr. car. We don't know if this letter was written before Jim made his trip to see Howard Fox or not; if so, Howard probably fixed him up with the body shell, but anyway, Jim would probably like to hear from fellow racing fans. He can be reached in the Operations Dept. at Patuxent—if he hasn't been shipped out by now.

Franny Wolf's idea of a "Joe Ilg Jr. Memorial Race" rings the bell with Bob More, who says he wishes he had thought of it. The boys sadly miss the anecdotes of model and full-scale racing that Joe was always telling, and miss just as much Joe's hot competition on the model tracks.

Like Carl Noward, Bob More is a fugitive from model planes—says his fingers still have plenty of razor nicks filled with "neverstick" glue. He got as far as the Detroit Internationals in '48 and '49, took several B Speed places in '53 contests. Speaking of Detroit and Plymouth, Bob is amazed at the odd places those famed Internationals sun helmets turn

up; he spotted one in the pit area while at a CSRA big car race at Scranton, the wearer turning out to be owner of Number One CSRA car for that year. He was Mark Bowles, an active model plane contestant of not so long ago, and now owner of the famed Winchester Hi-Bank Speedway in Indiana. Another time, at the Langhorne, Pa., big car track, a fellow walked up to Bob saying, "Say, aren't you—?" Yep, another ex-model plane builder. Seems to prove plane modelers grow up to engage in ever wilder pastimes!

Big event of 1955 model car racing season will be the Nationals to be held at Anderson, Indiana, Aug. 11-13. Mayor of the city has ordered quite a few track improvements such as paved pit area, paved walk around the track, and outside guard rails. Should be a fine event, and we expect that ATH will have full coverage at the Nats again this year.

A good race was held by Valley Miniature Race Club, Ontario, Calif. Speeds not too high, but closely bunched, which always makes for plenty of interest right up to the last run.

Top men at this race were: Custom Proto—1. Woody Woodward (Smith car), 137.19 mph; 2. Ray LaBahn (Frypan), 136.98; 3. Dick Macias (1234), 124.93; all used Dooling engines. Manufactured Proto—1. L. A. Smith (Arrow), 125.69; 2. Dick Ferrenoud (Railton), 123.11; 3. Butch Williams (Arrow), 111.66; again all Doolings.

Latest Bulletin of the AMRCA also gives thanks to this Column for digging up some new members for the organization. Hope our readers will continue to join this national model racing group; those interested should write Sec.-Treas. Carl Noward (1384 Berdan Ave., Toledo, Ohio).

Carl is also Editor of the AMRCA Bulletin which carries full accounts of all sanctioned races, and full lists of winners, as well as the latest scoop on the model racing game.

Commercial Dept. Prices have been finalized on the Martin Flash Mite car kits by Martin Engineering (8705 S. Chicago Ave., Chicago 17, Ill.). Complete kit less engine and tank will cost \$22.95; less engine but with tank—\$25.95; with both engine and tank—\$39.45. The McCoy .19 race car engine sells for \$13.95. All parts of the Flash may be purchased individually; list of parts for this cable car may be had from Martin Engineering at above address.

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## What's Your Hobby?



### "Collecting Insects"

"My hobby deals with insects," says Richard Nowak of Chicago, Ill. "I study and collect them. I got started two years ago while on my vacation when I saw wasps building a nest. Back home from the trip I purchased a book on insects, this in turn led me to my hobby. I greatly enjoy this pastime as it leads to outdoor life and has educational value. Its cost is small and can be done in spare time."

### "Building My Own Car"

Writes Bill Gattis of Clovis, N. M.: "I first started building my cars after seeing a picture of a home-built automobile in a magazine. The one, illustrated here, is named 'Gattis 8' and is the eighth one built by me. It is powered by a 1½ hp Briggs & Stratton engine equipped with belt drive and clutch. The car has brakes and headlights. Construction is all wood, body panels are plywood. Speed 15 mph."



Tell us about your hobby if it is of special interest to mechanically minded young fellows! Send photographs and details on how you got started to "What's Your Hobby," c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y. We pay \$25 for first photo and \$5 for extra photos used. Entries not used will be returned, but we cannot be responsible for submissions.

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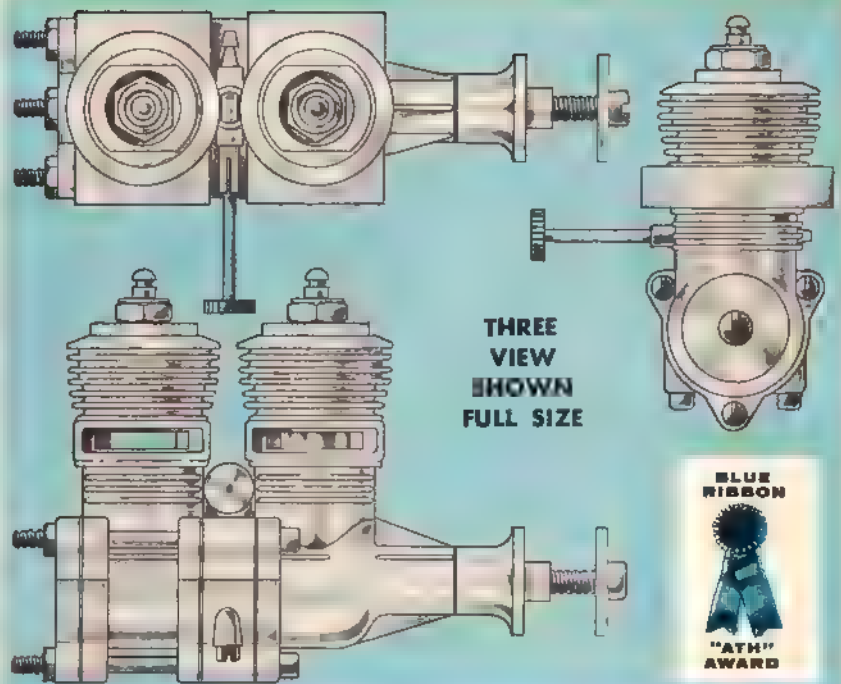
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**K & B Allyn's Innovation:**

**Amazing Twin Inline Glow Plug Sky Fury**

■ The year 1953 marked the entrance of the Allyn Sales Co. Inc. of Los Angeles, Calif. into the model engine field. Within two short years they launched their now-famous internal-combustion glow plug model outboard and later the complete and compact inboard version of the vertical shaft engine.

Recently, the merging of Allyn Sales Co. and K&B Manufacturing Co. was announced. The Sky Fury Twin is the first new product to be marketed under the combined banner of these two well-known manufacturers.

The complete line of Twins, both inboard and outboard, announced by this newly formed outfit, were not available in time to include them in this initial report. Therefore the .15 cu. in. disp Sky Fury Twin which was received in time to report on in this issue will be discussed. There will be available, however, a slightly smaller .099 cu. in. disp. version. The bore per cylinder of the .15 is .483" while on the .099 it is .390". The stroke of both engines is .406".

To produce a "Twin", you can't just bolt two engines together. Well—maybe you could and it might look like a twin but there is much more involved to get it to run like a twin. Fuel starvation to one cylinder is the biggest problem to lick. We are glad to report that the Sky Fury Twin does not suffer from this.

The basic design of each individual cylinder follows very closely the design incorporated in the original .049 Sky Fury, with some changes made in the steel cylinder liner. The exhaust ports, of which there are now only two, have been relocated from directly below the exhaust ports to a 90 degree position in relation to them. Also, by now using a conical transfer terminus, the fuel is directed upward into the head. The steel liner remains a hand-push fit into the aluminum casting and is not keyed. The liner is held in place by the aluminum head which threads into the main cylinder casting. A gasket between the liner and head prevents any compression loss.

The pistons are machined from "Lead-loy," then heat treated to almost glass hardness. Connecting rods are the "hanger" type. They are machined from aluminum stock and are round in cross section. The hardened steel wrist pin passes through the aluminum hanger which is then securely fitted to the inside of the piston.

The crankshafts are also machined from "Leadloy" and are heat treated in the same manner as the pistons. The crankshaft to which the propeller is attached is threaded internally to receive the propeller bolt. It is tapered on its forward end to fit the drive washer.

Although there is sufficient end play in this crankshaft—due to the decided difference in materials used—it is recommended that the propeller be tightened just enough to prevent slippage. Excessive tightening might push the drive washer rearward enough to cause binding against the main casting.

The rear crankcase cover of the forward cylinder and the front cover of the rear cylinder are formed by a separate two-piece aluminum casting. This cast-

ing also houses that section of the crankshaft which incorporates the rotary valve induction ports. These ports are located 180 deg. to each other but do not meet. The shaft is hollowed from both ends to meet the ports.

Centrally located on the top portion of the aluminum casting is the air intake and needle valve assembly. The throat of the intake tube widens out to afford direct passage to first one rotary valve and then the other, but not to both at the same time. Thus the two cylinders fire alternately and utilize the same needle valve for balanced fuel distribution. The lower half of the casting simply completes the bearing for the shaft. It is held in place by two machine screws which thread into the top section.

Machined onto the shaft at both ends are additional flywheels with their respective crank pins located 180 degrees to each other. The extra long, stepped crankpin on the forward wheel fits the slot in the flywheel of the propeller shaft and also engages the connecting rod in the forward cylinder. The standard length crankpin on the rear wheel engages the connecting rod of the rear cylinder in the conventional manner.

Both the needle valve body and the needle valve are machined from steel. The needle valve is of adequate length and ideally located to prevent knuckle skinning. The rear crankcase cover is also an aluminum casting. No fuel tank is supplied with this engine.

Gaskets are used between all crankcase castings. The three extra long machine screws which hold the various castings together are also used to radially mount the engine to the firewall.

A beam mounting bracket which will be available but which was not on hand in time for this report, can be attached, we understand, by removing the three nuts, then placing it on the crankcase bolts and replacing the nuts. The bracket can then be attached to the beams.

Running tests were made with K&B Supersonic 1000 fuel as recommended. Starting instructions were found to be completely reliable. Two separate booster batteries should be used, one for each glow plug. The Sky Fury Twin should never be choked to start. First the air intake tube being located between the two cylinders cannot be reached with a finger, and secondly flooding one cylinder more than the other will only result in poor starting. For this same reason, never prime this engine through the intake tube. The entire charge will enter only one crankcase. To start the "Twin," prime directly into each cylinder by squirting in fuel through the exhaust ports. (The manufacturers recommend 5 to 10 drops into each cylinder.)

Needle valve adjustment seemed a bit more touchy than the original Sky Fury reported on, but once the correct setting was noted, starts were quite fast. Being basically a high-speed engine, speeds are not too variable. The engine seems happiest on a lean mixture. Very little if any break-in time is needed with these engines due to a fairly loose piston fit.

Says Al Gasdia, "When this engine is running, the piston expands more than the cylinder sleeve due to the very good cooling produced by the one piece aluminum engine casting."

An 18,000 rpm was recorded with the 6/3 propeller supplied with the engine. A wide blade 7/3 developed 12,000 rpm.

All told, the Sky Fury Twin is one of the smoothest, most vibrationless engines encountered. For this reason it should prove very popular in R/C work.

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Solder and assemble from easy to follow diagrams. Designed to be used with 2B1 Relay. Ideal for proportional control!

### Kit Form Includes:

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Complete with long life RK-01 & XFG-1..... \$4.45  
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Complete—except for relay and battery..... \$4.25  
Power-Pas Transmitter  
Battery operated Transmitter similar to MAC II but using powerful 1 Tube Circuit for low battery drain. Housed in portable case with built-in Super Antenna System & space for batteries. Ready to operate. Guaranteed—less batteries \$24.95

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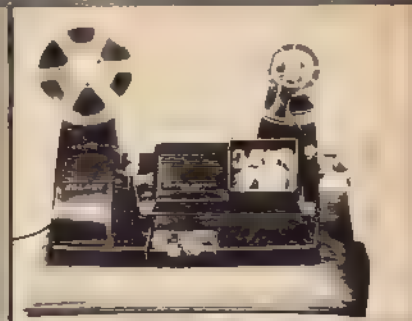
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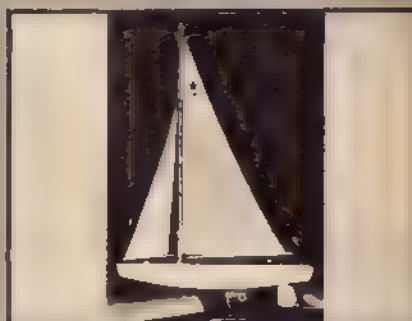
Box 506

Arcadia, Calif.

# HOBBIES'



**Editor-Viewer-Eight** is name Kalart has given to its new 8-mm viewer and editing device which stacks up as a complete outfit for film editing and repair. Your 8-mm film is enlarged more than 12 times on a ground glass screen; film can be reviewed repeatedly or stopped for frame by frame examination without danger of overheating. Folds flat for storage. **\$39.50** with splicer, cement.



**Sleek Star Racing Sloop**, an operating model kit, completely prefabricated, has been launched by Ace Products, maker of the well-known Ace modern motor car kits. Hull is balsa 17" long. Mast is birch 21" high. Included in **\$3.50** kit are hemmed sails of white muslin, weighted streamlined metal keel, metal rudder and all necessary rigging and fittings. Needs only finishing paint.



Designed by **Bob Palmer**, Veco's stunt "Thunderbird" kit is taken from plane which won California State Champion crown. Produced by Henry Engineering, this craft makes up into a model with 54 in. wingspan, 397 square in. of wing area, and overall length of 37 in. Approximate weight is 36 ozs. Takes power plants from .29 to .35 cubic inch displacement. **\$8.95.**



So small it takes 100 to make a handful, Mueller Electric Company's new Mini-gator clip is but 11/16" long, weighs 1/20th oz. Available in steel or solid copper. Separate one-piece insulators come colored red or black for easy identification of hot and cold test leads. Insulators fit skin-tight. Mini-gator is designed to be used with size #20 wire or smaller.

First "examination free" radio control equipment on market, latest version of Citizen-Ship Radio's 465mc transmitter is firm's CC-1. Priced now at **\$34.95**, this is the same equipment which passed rigid F.C.C. laboratory tests. Outfit also offers new PR "27" receiver as a do-it-yourself kit (see Blue Ribbon Radio Control coverage in this issue) and new selective escapement, Model SE



# SHOWCASE

For the young fry who want to start flying early Enterprise Model Aircraft Supply Co. has come up with the "Jet Rocket XR-1" catapult glider. Plastic fuselage has Air Force marking and simulated bombs. Comes in colorful box with rubber launching catapult. Whole deal sells for just 29c. Balsa wings and stabilizer are printed in bright blue, both sweep back.



For the first time in the low-price field, Ideal Models (22 W. 19th St., NYC) is offering the Angler which features an exclusive pre-shaped wood hull. It's 14 in. long with a beam of 5 1/4 in. Kit contains die-cut mahogany and balsa parts, 11 cast metal fittings, hook-up wire and battery connections. Designed for operation with miniature outboard motors. Retail for \$1.50.



New Kodak Retina IIc camera uses the Kodak Retina Xenon C lens (50-mm f/2.8) and duplicates the more expensive Retina IIc except that it does not have a built-in exposure meter. Viewfinder and rangefinder are combined in one window. Thumb-action film advance lever speeds picture taking. The "IIc" is priced at \$135. Field case costs \$13.50. Synchro Compur Shutter has built-in self timer.



A Perfect replica of the famous Grand Banks fishing schooner "Gertrude L. Thebaud," this all-plastic kit by Pyro Plastics makes up into a shelf scale boat with 17" hull, overall length of 20" and overall height of 17 1/4". Scale is 1/8" to the foot. \$3.49 kit includes all necessary plastic parts, thread for rigging and metal chain. Hull comes in two colors. Very realistic appearance.



Celestial Clock is a new science gadget that tells time by the stars anywhere in the Northern Hemisphere. It was designed by a professional rain-maker. Measures 4 1/4 in. in diameter. Printed on stiff cardboard. Sells for 35c postpaid, 3 for \$1 from Corn Weather Control, Box 9892, Ft. Worth, Texas. Intended for junior spacemen as well as ordinary star gazers. Instructive



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Complete ready to dope and fly.

For engines .19 to .36

Wing span 37 1-2" Length 24"

The Darwin Special Combat and Trainer is complete ready to fly, not prefabed but completely built, no gluing or papering, just mount your motor, the New Darwin profile fuel tank and dope.

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## Hobby Model World

(Continued from page 43)

ship as you might with a power plane. Keep practicing until "up-is-down-and-down-is-up" becomes second nature to you. Figure eights and the entire stunt pattern are possible with this practice model.

**Open House Becomes Good Club Project.** The annual open house demonstration put on by the Ann Arbor, Mich., Airfoilers sounds like such a good idea that other clubs might benefit from a few notes on how this year's affair went off. The affair attracted between 100 and 200 very interested spectators to the gym of the Ann Arbor high school during a weekday evening. Don Drury gave us a run-down on the session which started off with Al Temple, club president and well-known ex-AF modeler, showing colored slides of club activities and flying meets. During the winter months the Airfoilers meet each Wednesday night at the high school; summer gatherings are held at the city airport where the club has five flight circles and a race car track!

For the open house celebration members set up two long rows of tables which ran the length of the gym. Modelers gave demonstrations in constructing gas models, both speed and free flight craft, how-to clinics in covering, finishing, even retooling engines. One display was made up of ships in bottles and spectators were shown just how that feat is accomplished. More displays were devoted to completed speed jobs, stunt models, race cars and radio control planes. Ken Rider showed a part of his collection of model engines (which is said to include more than 200 powerplants). Don Drury kept a microfilm model in constant flight over the heads of the crowd.

We received a number of photographs of the event—unfortunately quality was so poor it precludes running them here. But they did serve quite well to illustrate the fine door prizes which included one of Darwin's new almost-finished stunt kits (wing is sanded and covered, fuselage and tail is sanded ready for assembly), as well as awards from local hobby shops.

Fifty models were entered by Airfoilers in a "workmanship" event which was open to all kinds of models. Bronze plaques were top prizes in each age class.

**Royal Okay for Modeling.** British modeling circles are aglow with the announcement that H.R.H. The Duke of Edinburgh has extended his "Patronage" to the Society of Model Aeronautical Engineers. This is about the same as President Eisenhower agreeing to serve as honorary president of the I.M.P.B.A., the A.M.R.C.A. or the A.M.A. This signal honor is an indication of the interest taken by His Royal Highness in the promotion of airmindedness, particularly among those under 30 years of age.

The S.M.A.E., which traces its origin from the Kite & Model Aeroplane Association founded in 1909, is the oldest body of its kind in the world. It acquired its present name in 1922, and in the same year was delegated by the Royal Aero Club to supervise model flying in Great Britain. The Society now comprises more than 400 clubs in every part of England plus many thousands of individual members. Each year the S.M.A.E. organizes numerous contests of national scope, including the British Championships, and sends British teams

to every world championship competition. The chairman of the Society, Alex Houlberg, is president of the Model Commission of the Fédération Aéronautique Internationale—the world-wide aviation body governing sporting aviation.

**Congrats to Ocie!** The Fresno, Calif., Model News celebrated its 15th anniversary this spring; for most of that time it has been written, edited, printed and distributed by Ocie Randall, one of the hardest working volunteers in the ranks of aeromodeling. Ocie passes along all the bouquets to his wife Hazel without whose help he says the FMN would not be possible. The monthly newsheet is billed as "the modeler's oldest model paper—voice of the West Coast modeler."

**Air-Modeling in Venezuela.** It all started back in 1937 when a PAA clerk, 33-year-old Rafael Ernesto Melo, who now works in Pan-Am's reservations department at Caracas, built his first model, a Curtiss Coupe. "I built that model from a box that contained many small pieces of wood, a drawing and a board on which to cut with a shaving blade. As I had not seen anybody make such a model, I disregarded the blueprint and estimated the size of the sticks and other parts; many hours were required to make this model," Melo recalls.

"Nowadays, everything is made easy for the enthusiasts, parts for the model come pre-cut."

(But, Rafael, we still find modelers discarding the instructions and plans and estimating sizes while guessing at construction!)

Melo took such an interest in the hobby that he opened the first model shop in Venezuela, ordering materials from the U.S.A. In 1944 he helped organize the first national model plane meet. Top winner—well, his initials were R.E.M.!

This fellow who now can be seen frequently with control line models is called a real pioneer of model aviation in his country. Proof of this is that in the official aviation annals of his country he is listed as contributing substantially to air progress through his model aviation leadership.

**Modeling in Japan.** Latest report—and we get a lot of them—on Japanese modeling comes from Cpl. Henry T. Brown who was stationed over there with the Army's Far East Command. By now Henry is probably rotated back to the States and has seen the home folks down in Florida.

Before he left he attended two big Japanese-American model plane meets near Tokyo, both sponsored by the Army and Air Force Special Services Units. Entrants were U.S. servicemen and Japanese modelers. All the usual events took place with A.M.A. rules applying. There were a large number of control line scale models at both competitions and H. B. says they stole the show on both occasions.

In general, Henry found, the Japanese modeler takes great pride in his models and puts in long hours giving them beautiful finishes. Almost every scale entry had a finish like glass.

"In the various magazines in Japan," reports Cpl. Brown, "and also in the kits available there are a few marked departures from American construction practices. For example, most all models use a single engine block that mounts the powerplant and gas tank along with the bellcrank assembly. This block is



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FOR SPORT, STUNT & SCALE

Completely Assembled, Ready To Install

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Complete "Long" Handle For Sport, Stunt & Scale

**\$1.95**

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SCHULENBURG, TEXAS

one piece and not built up. Wing spars and body members are of hard wood. The majority of kits purchased from Japanese concerns had no balsa, instead a thick sheet of flexible wood something like pine is supplied. This is much heavier than balsa and so the planes weigh quite a bit.

"Mr. Kokubo of the Eureka Trading Company in Tokyo advised me that his kits have balsa planking and are the only such kits in Japan. (These kits are supplied through an agent in California for Stateside delivery.)

Japanese scale construction covers about any type of plane you can name—from WWI fighters to modern DC-6's and B-29's. Multi-engine aircraft are very popular—DC-3, B-26, B-25, C-45 and the C-119 to name just a few. And really beautiful in flight, too. Just recently I purchased a kit of the C-119 Flying Box Car and learned that it had won the 1953 All-Japan meet and came in second at the last meet I attended.

"I am sorry that I do not have a complete list of winners with times and speeds, but I do know that the stunt flying was captured by Super Duper Zilch planes powered with Enya .63's."

—THE DOPESTER

## WESTERN ROUND-UP

**Winder-Inner.** One other gadget which is getting universal acceptance here on the Coast is a reel for towline which allows the flyer to wind in his line before it can fall to the ground. Using a "Hobby Grinder" which is available for 98c from most ten cent stores, this is adapted by removing the grinding wheel, which incidentally is held on with a left-

hand nut, installing in its place a plywood reel of 4" diameter with 6" plywood sides, bending the tool rest out flat so that a music wire guide for the line can be installed, removing the thumb screw, bending out flat the mounts and screw support and installing a plywood handle. The ratio is 10:1, allowing one to wind in the line so fast that it is pulled down into the reel. This was first seen at a Tucson contest years ago but, man—it is really good.

**Motor Run Checker.** Hank Gaskill had another little gadget which is sure good. He removed the crystal from his stop watch and drew nice black lines extending inward on the face of the watch at 15 and 20 seconds so that motor runs could be more easily seen . . . it works real slick.

**Boost for Super Self Starter.** Bob Moncrieff had one of Tony Koveleski's new starters for A/2 engines mounted on his A/2 job. This little gadget really stopped the contest. Bob allowed anyone who wanted to start this engine, and did we have fun! This thing really works, it will undoubtedly lead to fewer busted knuckles and more engines that will start easily, then the manufacturers have ever been able to accomplish through good design and good instructions. Bob's engine never failed to start and we found that this starter would turn the engine over faster and many more times than was possible in any way with your finger alone. To us this is just a repeat that the simpler the idea the better it works. This starter will beyond a doubt be a great boom to our model flying.

Christine Zaic was at the Santa Bar-

bara meet. Brother Frank is presently working with J. P. Glass who did all that research on MRL for the yearbooks—they are located in Philadelphia.

—DICK EVERETT

## Model with Mission

(Continued from page 23)

the party scratching his scalp over the problem of finding and rescuing models when winds chance to blow the wrong way.

Next thing I knew, Dallas Sherman was proud papa of a little Mooney "Mite" 18-L single seater which he named "PAApooose." He asked AMA if maybe he and PAApooose couldn't help the Navy whirlybirds do model search and rescue at big contests, and go it alone at the smaller ones. AMA said it would be delighted and immediately spread the good word to C.D.'s throughout the land. Dallas introduced the PAApooose to modelers at the 1955 Washington's Birthday meet. She was all decked out for the occasion with fresh aluminum finish in red-white-and-blue trim. (This time wrong-way winds and rain forced 9 or 10 models to ditch in the drink).

Sherman's Mooney "Mite" is as modern as they make 'em: cantilever low-wing monoplane, wing-flaps, balanced tail surfaces, tricycle retractable landing gear, sliding bubble canopy, 2-way VHF radio, and all the trimmings. At the same time it is simple enough and small enough so that any modeler can under-

(Continued on page 85)



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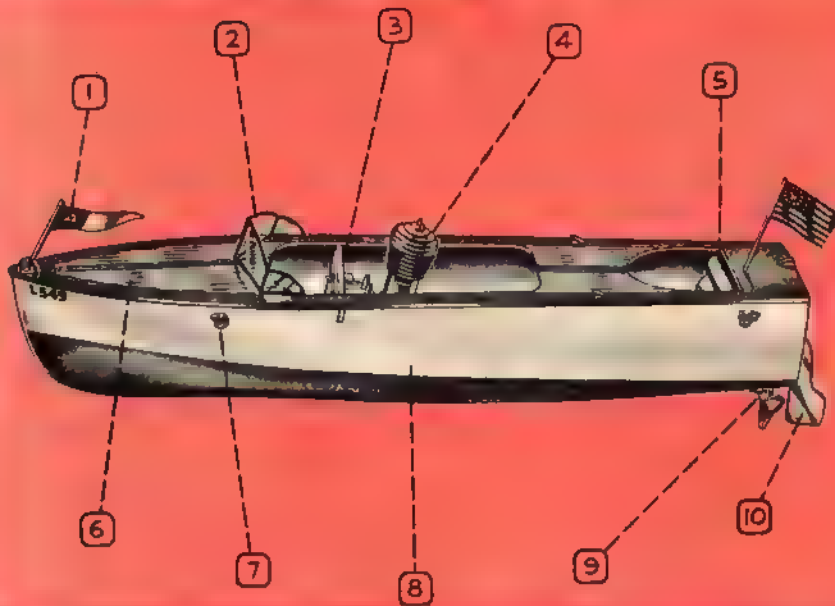
**Translator** **2.95**

**GYRO ELECTRONICS CO.**

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**WOhh 6-1290**

# ENTERPRISE BOAT



■ Enterprise Model Aircraft (Mineola, N. Y.) makes its bow (pun!) in model boat field with this nearly-built foot-long "Surf Skimmer." Features: 1) printed flags, masts included, 2) printed celluloid windshield, 3) die-cut, drilled, plywood motor mount, 4) Space Bug, Jr. engine supplied in kit, 5) shaped balsa seat, 6) die-cut, printed, plywood top decking, 7) bridle clip for tethered operation, 8) completely shaped, hollowed balsa hull, 9) shaft, coupling, propeller, etc. included, 10) finished aluminum rubber. Very rekish design with good performance characteristics

**BLUE RIBBON**



**"ATH" AWARD**

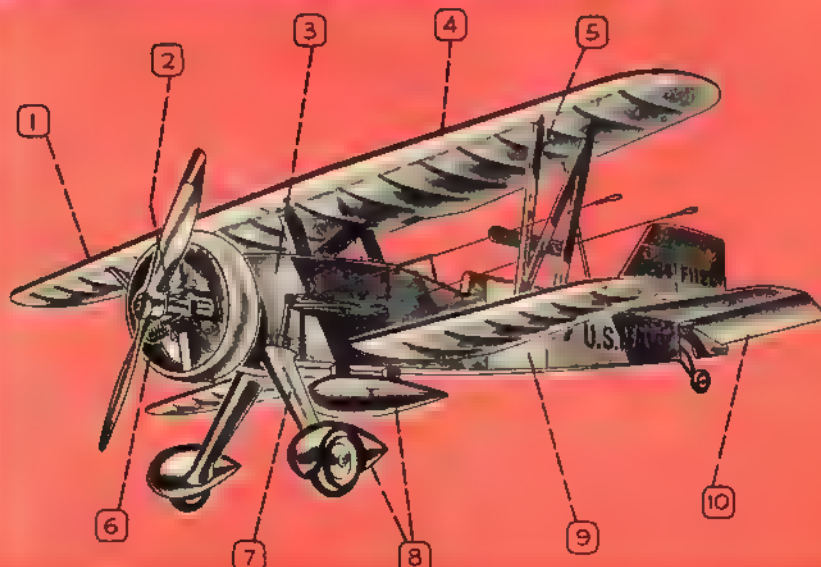
**BLUE RIBBON**



**"ATH" AWARD**

■ Springfield Models (Philadelphia) starts new series of large control line profile-type semi-scale models with this 32" Curtiss "Goshawk" biplane. Newsworthy points include 1) Silkspan wing covering and scale decal insignia supplied, 2) .19—.35 cu. in. displ. engines recommended, 3) die-cut plywood doublers, 4) tapered, shaped, notched edges and die-cut ribs, 5) die-cut plywood wing struts, 6) formed plastic speed ring, 7) shaped wire gear struts, die-cut balsa fairings, 8) formed plastic wheel spats and belly tank, 9) die-cut profile balsa fuselage, 10) complete die-cut balsa tail group.

# SPRINGFIELD "GOSHAWK"



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**KNIVES • TOOLS**  
**HANDICRAFT KITS**

**REFILL-BLADE KNIFE**  
**ALWAYS SHARP**



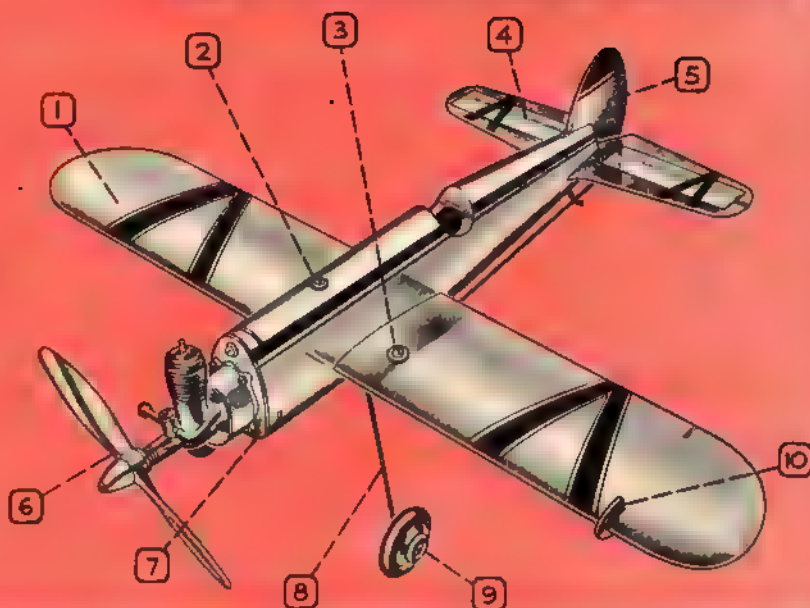
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**\$4.20**

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# MASTER MODELCRAFT'S

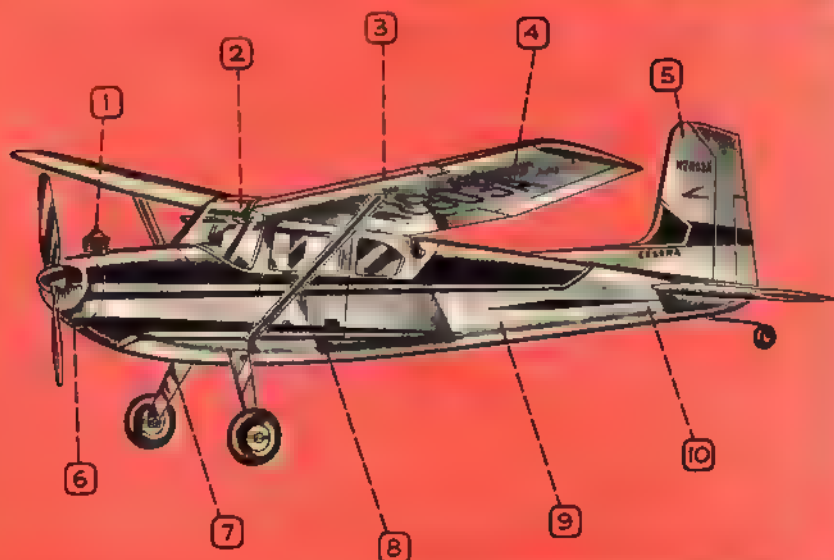


■ Ready for quick assembly is 17" "Sky Scooter" by Master Modelcraft (New York City). Points of interest: 1) shaped balsa wing, ready for sanding, 2) finished two-piece balsa fuselage with assembly hardware, 3) control system ready for installation—handle and lines included, 4) die-cut plywood elevators, stabilizer, 5) die-cut plywood fin, 6) complete Cub .049A powerplant—engine, propeller, tank—supplied in kit, 7) die-cut plywood firewall, nose reinforcing pieces, 8) formed steel wire gear, 9) wooden wheels and rubber retainers, 10) die-cut line guide. Can be assembled without cement.

■ Especially for R/C operation Sterling Models (Philadelphia) offers this 45" scale Cessna 180 with following highlights: 1) half-A and A class engines recommended, 2) hardwood dowels, celluloid windshield material, 3) silkspan wing covering material supplied, 4) die-cut balsa ribs, tapered trailing edges, spars, etc., cut to dimension, 5) die-cut balsa fin, rudder and dorsal fin, 6) formed steel cowling, 7) steel gear legs formed, drilled, 8) data for installation of radio receiver or control-line mechanism, 9) die-cut sides, material included for sheet covering, 10) fuselage formers die-cut.



## STERLING "180"



## GYRO FREE-Now Radio Control Catalog The Most Progressive & Reliable RADIO CONTROL SUPPLIER

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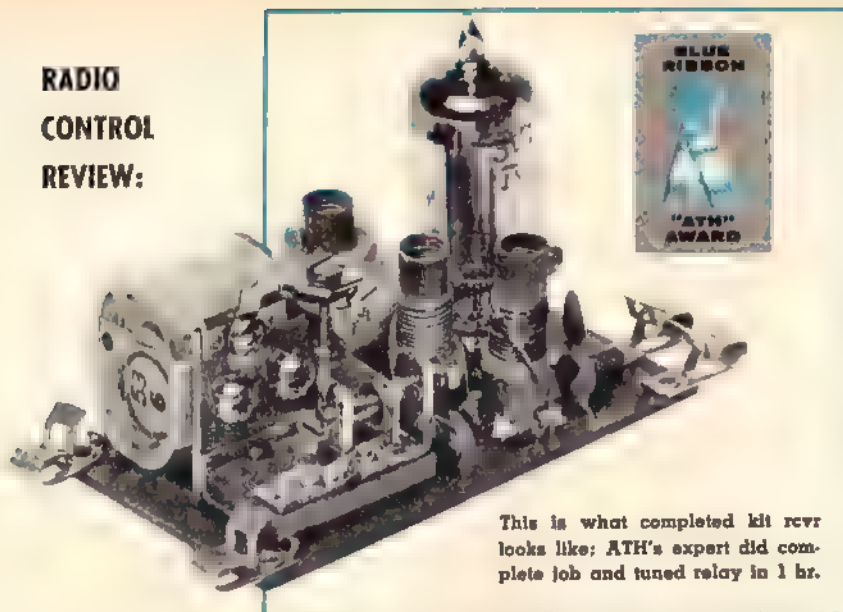
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### RADIO CONTROL REVIEW:



## Citizen-Ship "PR-27" Kit Receiver

■ To bring the experimenter a tried and proven 27¼ mc. receiver at a lower price, Citizen-Ship Radio Corp. has produced the "PR 27," which is almost identical to the CSRC Model LR 27¼ mc. receiver—circuitwise, at least—but which sells for five dollars less. Physically, the new unit is quite different, having been redesigned to take advantage of the printed-circuit technique. All components are mounted on one side of the base, while all soldered connections are made on the other side. The receiver may therefore be cemented to foam rubber for shock mounting if desired, rather than being mounted in the model by means of rubber bands from the four corners. The new model has four small spring binding posts at the corners, however, and rubber band mounting is just as easy with the PR 27 as with other C-S receivers.

The significant circuit changes in the kit receiver from the Model LR (described in Nov. '53 ATH) are elimination of the 100K resistor across the "T" coil, and use of a 1500 mmf. condenser instead of .002 mf. unit in ready-built model.

The PR 27 comes packed in a neat and colorful box which includes a fac-

tory-adjusted Sigma relay. This box should make it very easy for hobby shop owners to display--as with all numbers in the C-S line, this new unit will be sold through local hobby outlets.

A very complete step-by-step instruction booklet comes with the kit. It gives full information on assembly, tuning and adjusting, mounting and wiring in your model, relay setting, etc. Actual assembly of the receiver takes only a short time, and it is very difficult to make a mistake. To see just what problems the builder might have, we put the kit together and adjusted it, following instructions closely. Without trying to do the job in record time, it took exactly 25 minutes from the time the box was opened till the receiver was complete and ready for testing. Hooking it up for bench test, and getting it going to our satisfaction took another 35 minutes, which included relay adjustment. So the whole task covered just an hour. Though it's hard to see how any hobbyist could go wrong on this job, C-S Radio Corp. will check over any receiver which does not work as it should, for a standard fee of \$2.50.

The base board comes to you with the

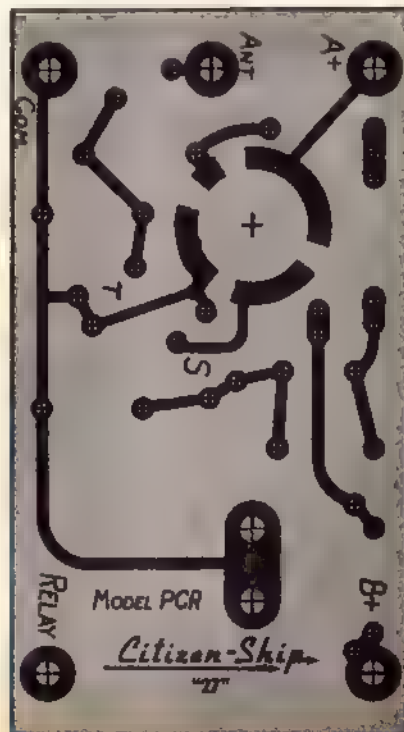
five spring clips riveted on, thus there is no "machine work" at all to be done. You simply slip the leads of the parts through the proper holes in the base board, and solder them fast. There are only two screws in the entire assembly—those that hold the Sigma 4F relay. The two turning coils and the quench coil have rivet-lugs that prevent them from being assembled incorrectly, and the socket cannot be put on wrong, since it is keyed to the baseboard. Sufficient solder of the proper grade is furnished to do the whole job, and it is strongly recommended that this solder be used, rather than just any you might have.

This single hard-tube will also be sold in finished form, as model PLR. C-S Radio will no longer make the Model LR receiver. Any parts of the PR 27 that you need may be purchased separately.

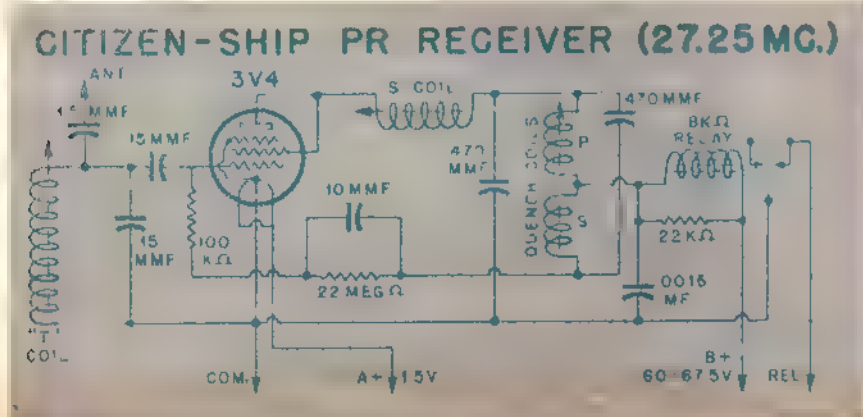
**Specifications:** Model PR 27 receiver—single hard-tube type, using a 3V4 tube. Overall size is 3 3/8" long x 1 13/16" wide x 2 3/4" high, including tube and connection clips. Two main tuning controls—screw adjustments for tuning and sensitivity. Quench coil has adjustment—needs setting only when receiver is first built. Relay—Sigma 4F with 8000 ohm coil. Recommended antenna length—18'. Receiver may be used for boat or other short-range control purposes up to about 100 yards with no antenna. Weight with tube—3 6 oz.

**Power Requirements:** B battery voltage 60-67½. A battery—1½ V. at 100 ma. On 67½ V., test receiver idled at 1.6 ma., dropped to .4 ma. on moderately strong signal. Lightest recommended battery complement: two pencils in parallel for 1½ V., and two 30 V. hearing aid batteries (Burgess V20E or equivalent) in series, to give 60 V. 67½ V. battery (Burgess K45 or equiv.) strongly recommended for long life and reliability. Lightest battery complement mentioned above weighs about 4 oz.

Although this is not the exact printed circuit used in the C-Z "PR" receiver it does give a same-size idea of layout.



This circuit follows generally that of the 1953 issue. Significant changes that have been made are described here in text.



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- No. 3 for 3 miniature pencils . . . . . 45
- No. 4 for 4 miniature pencils . . . . . 65
- No. 5 for 1 regular pencil . . . . . 30
- No. 6 for 3 regular pencils (4 connection type) . . . . . 50
- No. 6A for 3 regular pencils (3 connection type) . . . . . 40
- No. 7 for 3 regular pencils . . . . . 65
- No. 8 for 4 regular pencils . . . . . 85

- No. 9 for 1 medium size C cell . . . . . 30
- No. 10 for 2 medium size C cells (4 connection type) . . . . . 50
- No. 10A for 2 medium size C cells (2 connection type) . . . . . 40
- No. 11 for 1 large size D cell . . . . . 30
- No. 12 for 2 large size D cells (4 connection type) . . . . . 50
- No. 13A for 2 large size D cells (2 connection type) . . . . . 40
- No. 13 for 1—22 1/2 volt cell . . . . . 30
- No. 14 for 2—22 1/2 volt cells (insulated at all 4 contacts) . . . . . 50
- No. 15 for 3—22 1/2 volt cells (insulated at all 6 contacts) . . . . . 35
- No. 16 for 1—3 volt pack type cell . . . . . 55
- No. 17 for 1—30 Volt cell (such as Eveready 506 or equivalent) . . . . . 60
- No. 18 for 2—30 Volt Cells (such as Eveready 506 or equivalent) . . . . . 75
- No. 19 for 1—30 volt cell (such as Eveready 413 or equivalent) . . . . . 60
- No. 20 for 2—30 volt cells (such as Eveready 413 or equivalent) . . . . . 80

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## Model with Mission

(Continued from page 81)

stand and appreciate the design and construction. Designed like a cross between a fighter and a high-performance sailplane, it is built mostly of wood and fabric like PAA-Load models. Handles payload nicely, too.

As to the place of PAA-Load in the model aircraft hobby generally, Mr. Sherman feels it has made a significant contribution to free flight modeling by stimulating the design of models which do not fly very far, and hence do not get their owners into difficulties by landing in places where people object to strange objects falling out of the sky. There is also the matter of decreasing the distance for chasing models, which appeals to every free flyer.

Sherman believes that by cutting down the time aloft and distance traveled by free flight models the difficulty mentioned above, also the even tougher problem of finding a place near big cities for flying with free flight models, will be greatly ameliorated. Recent AMA rules changes, aimed at shorter flights, are calculated to serve the same end, so PAA-Load is following a trend which is vital to the future of modeling.

But D. S.'ll tell you that his basic objective is the same as the one he had when he wrote the original PAA-Load Rules in 1948: Then, and now, the idea is to provide a mission for model aircraft. Let them have a purpose for flying. Let them carry payload, just like the Clippers, the Mainliners, the Flagships and all the rest.

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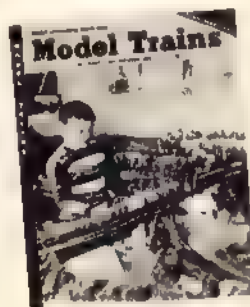
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This flight tested beauty is 58 inches in length and kit comes complete with pre-cut parts. All balsa needed for planing entire model. Full size blueprints. Landing gear is built up with semi-pneumatic rubber tires. Gas tanks are completed. Has beautiful aluminum cowling, propellers, decals, and many extras.

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## J-C-S Guide

(Continued from page 57)

ron. Experience as a flight test technician was gained through summer jobs with the Chance Vought and Grumman aircraft manufacturing firms.

The other winner, Warren J. North, 32, attended the University of Illinois before joining the Air Force in 1943. During the war he served as a bomber pilot and instructor. Going back to school, he obtained a B.S. in Aeronautical Engineering from Purdue in 1947. In September of that year he became employed at the Flight Propulsion Laboratory of the National Advisory Committee for Aeronautics at Cleveland. With this government agency during the intervening years he served as both an aeronautical research scientist and a research pilot. Engineering work included wind tunnel tests on turbojet engines, performance analysis of ramjet missiles, and investigation of aerodynamic noise. As an NACA pilot he was engaged mainly in ramjet and turbojet-icing research programs.

For the past several years, after the day's duty with NACA, North took night courses at the Case Institute of Technology for a master's degree in Aeronautical Engineering. This he received the past June.

It doesn't take a professional analyst to find a common denominator in the cases of these men. *Each of them never stopped working or studying.* Each combined the theoretical and the practical in pursuit of knowledge. And significantly, each was back in school when "tapped."

Most schools have some kind of scholarships or awards for further training available to those preparing themselves to enter the aviation field. The majority of these are for the benefit of junior and senior students. In other words, you won't lack for assistance once you start formal schooling and begin to prove yourself—even though the immediate goal is just help in finishing the last two years of college.

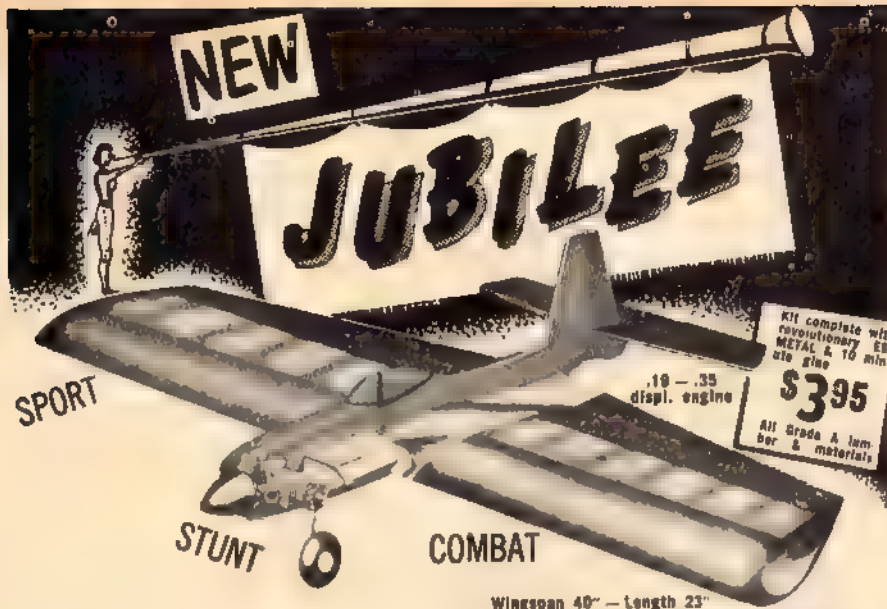
## Tuning Up

(Continued from page 34)

learn to know your car, discover how to get more speed and those "competition nerves" will leave you. Practice will improve your trouble-shooting skill, too. For instance, if the car doesn't even pop, it's usually a broken ignition wire; if it breaks into a four-cycle again near peak speed, it's the plug; if a normal car suddenly leans out and quits, it's usually a leaky tank; etc.

Try "lap counting" as an aid to "calling in" the car. Begin with the push-off lap and end with the lap when it "peaks." This is a great help to those who become nervous. Also it's a tip-off of trouble a-brewin' somewhere when the number changes drastically. You still must listen for that "right sound," however, for track surfaces will vary the count. If while on time, the car begins to slow up and sound strained, don't hesitate, shut it off. The piston is probably "seizing" and the next lap may be a quiet one not to mention two flat tires.

Always remember to oil the bearings,



Here's the plane that's sure to start a whole new trend! So versatile . . . so rugged . . . so easy to build—and it flies like the wind itself. 1 pc fuselage keeps wings absolutely rigid. 2 pc removable wings for easy replacement . . . greater portability. Skin stressed leading and trailing edges give unmatched strength. Extra large wing area makes it easy as pie to fly.

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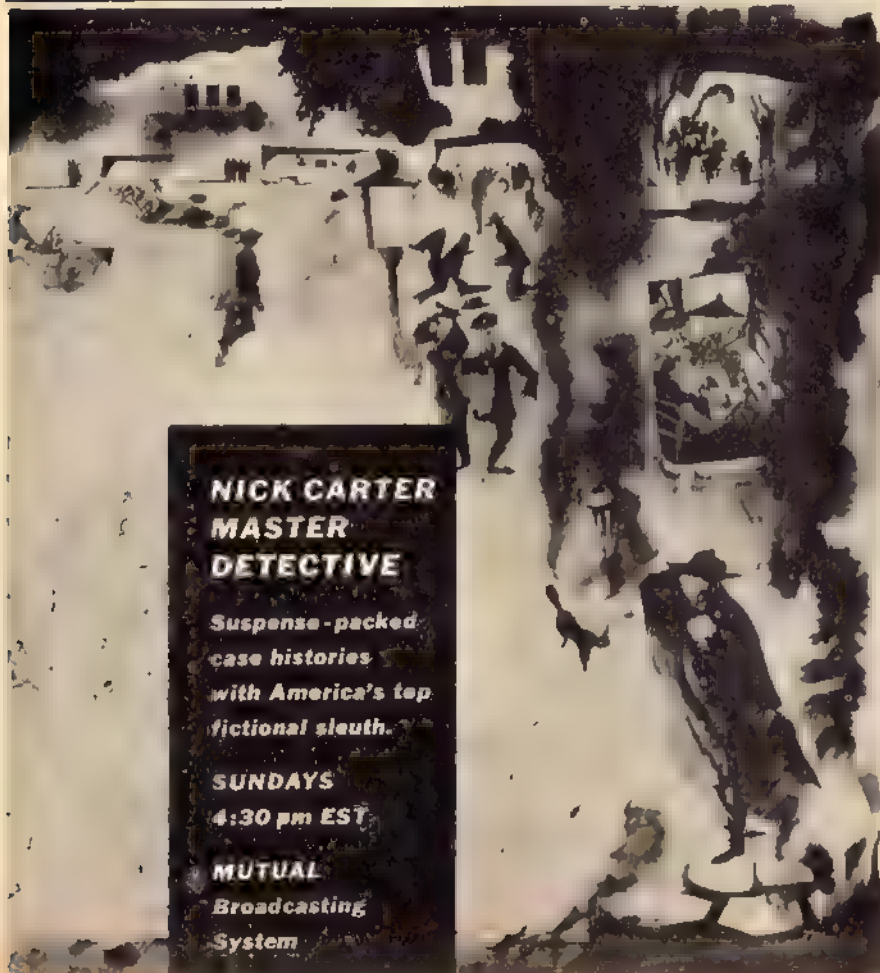
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The final word is this. Treat your car and engine as a unit. Ignore one item and it will let you down. Careful attention to fundamentals, cleanliness, and slow development based on experience will put you in the winning circle. As for those Hop-up Tricks—next time you see a Fox or a Loose, take his engine apart, and take a real good look. You'll be surprised to find yourself disappointed.

## Engineering Jobs

(Continued from page 39)

**AERODYNAMICS.** Working very closely with Preliminary Design, the Aerodynamics section determines the most efficient configurations for the proposed design. High-speed flight creates many problems in frictional heat, flutter, vibration and control. Aid in the solution of these problems is the purpose of Aerodynamics. Aerodynamicists in this section must have aptitude and ability to apply higher mathematics, physics and aerodynamic theory to these problems.

You, as a beginner, will start with the simpler forms before you are called upon to perform more difficult tasks. At the same time, you will not only be permitted, but encouraged to become more familiar with the latest aerodynamics problems and their solutions. The minimum requirement for a Junior Aerodynamicist is a Bachelor of Science degree in Aeronautical Engineering or Mechanical Engineering with an aeronautical option.

Starting salaries range from \$4200 to \$4800 annually. Top salaries in this section run as high as \$18,000.

**WIND TUNNEL — The Aerodynamics Laboratory.** This is where many of the ideas of the practical dreamer fail. Here too is where much money, time and many lives are saved. Working with scaled models and full-sized test sections, you as an engineer in this section will determine to a greater extent the practicability of the proposed design. The results of wind tunnel tests may dictate a change in the shape of an air duct, airfoil section, pilot compartment or any other part of the plane's shape or structure.

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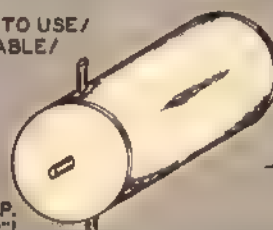
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## MODEL BUILDER CLUBS

**RACE CARS**—American Miniature Racing Car Association. For membership information send 10c to Carl Noward, 1354 Berdan Avenue, Toledo 12, Ohio.

**POWERED BOATING**—International Model Power Boat Association. Mrs. Margaret Baxmann, 2901 Garland Avenue, Detroit 14, Michigan. Send 10c for membership data.

**AEROMODELING**—In U.S. official governing body is the Academy of Model Aeronautics, 1025 Conn. Ave. N.W., Washington 6, D.C. Send 10c for information on joining.

**MODEL RAILROADING**—National Model Railroad Association, c/o Bob E. Baat, P.O. Box 1238, Sta. C, Canton 8, Ohio.

**CANADIAN—AIR—MODELING**—Model Aeronautics Association of Canada, 2109 Bleury Street, Montreal, Que. Send 10c for details. ....

the same as for the Junior Aerodynamicist.

**RESEARCH.** Research never ends—especially in aviation. In this busy department new ideas are developed and proved, new units are tested and new processes initiated. Full-scale mock-ups of the various parts of the plane are tested here. How will a moving part operate at temperatures six times colder than a deep freeze? How much strain can a wing surface stand at temperatures hotter than boiling water? How much force can a pilot exert on an aileron? Can cabin pressures be maintained in outer space? As a research engineer, you will find the answers to such questions in the environmental "torture chambers," where sandstorms, desert heat, jungle fungus, Arctic fridity and every other imaginable condition is duplicated. It's all part of your task to enable men, planes and precious cargo to go anywhere at will.

Graduating engineers with a Bachelor of Science degree may start their careers in the Research section. The initial work assignments are usually in the nature of assisting more experienced engineers in testing and computations. All phases of engineering are used here—mechanical, electrical, electronic, structural, chemical, metallurgical and applied mathematics. Starting salaries are the same as the two previously mentioned sections. Top salaries depend upon individual experience—there is no limit.

**STRUCTURES.** The work begins here to transform the idea into an actual airplane. This department embraces practically every phase of engineering. A typical design will require the following groups: Fuselage, Landing gear, Electrical Systems, Powerplant, Wing, Equipment, Empennage, Controls, Radio and Communications, Armament for military projects.

It is the responsibility of each of these groups to work out in detail the drawings and perform the calculations necessary to produce their particular part of the plane in keeping with the shape and weight set down by the Preliminary Design department. Many challenges are offered here to the graduate engineer. For example, you must know how to retract a wheel strut nine feet long into a space only three feet long. What's more, you may have to figure out how to design a portion of the fuselage to hold five pieces of equipment when it looks as though you have space for only three. You must be versatile and adept at figuring out ways to save space and weight and still maintain strength.

You, as a member of one of these groups, will be working for men with searching, stimulating minds and in a short time you will be adept at solving seemingly impossible problems. No matter what your final goal in aeronautical engineering might be, this department is the most important to your future! Most of the Chief Engineers in aviation today have obtained their experience through the drafting work and solution of small but complex problems encountered here.

You must have a thorough knowledge of Engineering Mechanics (design of linkages, gears and moving parts) and Strength of Materials and be able to apply mathematics to the solution of problems encountered in structural analysis. If you have an aptitude for working out tough problems in construction and loads, you will like Structures.

## Air Trails HOBBIES For Young Men

The education requirement is a Bachelor of Science degree in any field of engineering. Your salary will range from \$4200 to \$12,000 annually depending upon your education, ability and experience. The top position goes as high as \$19,200 annually.

**MATHEMATICAL ANALYSIS.** Spurred by the increasing speeds and altitudes in jet and missile design, a new field of engineering known as Mathematical Analysis has developed. The main purpose of this section is to solve problems—using high-speed automatic computers—arising from aircraft design, flight and research. This section works with all engineering departments. If you are a mathematical wizard, this is for you! You will formulate new equations, based on the laws of physics, to be used in various engineering procedures, reduce time spent on mathematical computations by simplifying present formulas, and through the use of advanced electronic computers provide solutions to problems heretofore considered insoluble.

Graduates having a Bachelor of Science degree in Aeronautical, Mechanical or Electrical Engineering, Mathematics, or Physics are eligible for positions in Mathematical Analysis. On-the-job training with the automatic equipment is necessary. Salaries range from \$4200 to \$9000 annually.

**PROTOTYPE CONSTRUCTION.** So far the sections we have visited have been designing and testing components of the proposed aircraft. They have found out what speed, heat, cold, stress, vibration, etc., will do to each part of the plane and the passengers. Equipment has been strained, broken and worn out. The landing gear passed the test of absorbing shock equal to 250,000 pounds. They have made up seats, tails, canopies, controls, air ducts, wing panels—everything has been checked and double-checked to make sure that the engineering has been correct. They have even taken scale models aloft and dropped them from high altitudes, tracking them with radar to learn aerodynamic characteristics and stability. The airplane is approaching the acid test of actual flight in the next section we visit . . .

**PROTOTYPE CONSTRUCTION.** Most aircraft companies build two prototypes of the proposed plane to serve as flying laboratories. These prototypes are tested in actual flight and the results of the test determine whether the plane will be a success or a failure. They are for the most part fabricated by hand, requiring great mechanical skill and a large amount of engineering know-how in many phases. Men highly skilled in woodworking, pattern making, metal casting, tool and die work, machining, sheet metal fabrication, welding, electrical work, upholstery, interior decorating, painting—the list is practically endless—are required to make the many components of the prototype.

Most of these skills do not require college training or degrees. High school manual arts programs, in many cases, supply sufficient technical education for these jobs. Your part-time work experience with these crafts will be helpful. Advancement and promotion can follow as experience and skill increase. Supervisory positions, however, require a working knowledge of engineering since there is considerable contact with the departments previously mentioned. If you plan to go to college and find that you



like both engineering and mechanical work, this department will be attractive to you. Aircraft maintenance engineering should be your field of study.

Salaries in this department range from standard going wages for the various crafts involved to \$4800 to \$8500 for supervisory positions.

**FLIGHT TEST.** A daredevil pilot takes the plane up for the acid test. He flies the prototype, using every trick he knows to tear the wings off! If the wings do come off, engineering goes back to work trying to figure out why—asking the pilot for clues, if he is still alive. This may have been true twenty years ago—but nothing could be further from true in the flight test department we are going to visit.

The "daredevil" of today is actually an engineering test pilot, complete with a Bachelor of Science degree or even a Master's degree in Aeronautical Engineering.

The flight test department of today makes tests and recommends modifications to improve safety, utility, and performance of the aircraft and component parts. They develop instruments and test equipment necessary to obtain the required information. Engineers working in this department must have a knowledge of one or more of the following fields: mathematics, aerodynamics, electronics, communications and physics, piloting and technical writing. In a single-place aircraft, one flight test engineer obtains all the necessary data through observation and automatic recording instruments.

In a larger aircraft, a group of engineers working as a team secure the information. It takes from nine to twelve months and tens of thousands of dollars to complete tests—a far cry from the single flight test of twenty years ago!

Graduate engineers start in any of the above mentioned fields, particularly flight analysis, instrumentation, communications and the preparation of flight manuals. Salaries range from \$4200 annually for beginners to \$18,000.

We have now completed our tour of Phase One—the airplane has been proven sound to our company. Now the customer must decide whether the plane will sufficiently meet his specifications in further tests to be conducted under his supervision. Engineers try to fulfill customers' wants in every way, but in many cases, because of the nature of the specifications, compromises must be made in weight, equipment or performance. The final decision must be made by the customer—and if he approves, the plane is readied for Phase Two—Production, Delivery and Service.

The end of Phase One marks seven to ten years of "blood, sweat and tears." The initial development of modern aircraft has become not only a long, but a costly process. Twenty years ago you could have purchased 400 twin-engine twenty-one passenger transports for what it costs to develop one four-engine transport in use today! This development has greatly increased your opportunities. One out of every 100 employees in the United States was an engineer twenty years ago—and today the figure is 1 out of every 50. One aircraft company employed 1 engineer for every 22 employees ten years ago, and today 1 out of every 6 is an engineer. In this same company, only ten years ago, 1 out of more than 1,000 was a technician. Today this figure is 1 out of 20!

Will your opportunities in aviation re-

main great? Yes! Aviation has really just begun to develop. Aviation is now reaping the rewards of scientific research and is putting them into practical use. Aviation is on the threshold of new and even stronger sources of power and guidance, and the miracle of interplanetary space flight. Within and beyond this atmosphere of earth and space there lies a new way of life. Aviation is waiting for you with rich rewards.

(Next month's installment of this article will present a detailed account of your opportunities in Phase Two—Production, Delivery and Service.)

## The Readers Write

Let's hear from you! Address all letters to Air Trails HOBBIES For Young Men, 304 East 45th Street, New York 17, N. Y.

**New Race Car Man . . .** Your magazine started my model building back in 1947. Now, you have interested me in model race cars about which I know nothing. I would appreciate any information or sources of information you could send me about model racers and construction of tracks.

*Billy Vines Greenwood, Marian, Va.*

• **Contact Carl Noward, Secretary-Treasurer, American Miniature Racing Car Association 1,384 Berdan Ave., Toledo 12, Ohio.**

**Auto Design: Check! . . .** I wish to thank you for awarding me third prize for my auto. I was very grateful for this award. The \$10.00 check will go in the bank.

*Robert Stevens, Melrose Park, Ill.*

**"Warm" Memories of Mirror Meet . . .** While reading your May issue of Air Trails Hobbies For Young Men, I came across a picture in the Dope Can section of my burning jet beauty ship. The picture was taken at the 1954 Mirror Meet at Floyd Bennett Field, N. Y. I was so busy looking for a fire extinguisher at the time that I don't remember anyone taking any pictures of it. As a slight correction to the caption the ship was a Dassault "450" and not a "Mystere." It had a 48½" span and a 45" length and weighed about 6½ lbs. Needless to say I never flew jets without a fire extinguisher with me from then on.

I am now in the U.S. Army and am stationed in Anchorage, Alaska.  
*Pvt. Lew. Schepacarter, RA 1246000, APO 949, Seattle, Wash.*

**Scale Views by Jefferies . . .** The first thing I always look for in your magazine is the article "Scale Views by Jefferies." If you reproduce these scale views in booklet leaflet or any other form please send me a list of available reproductions and tell me how and where I can obtain copies of these reproductions.

*Ulo Kuriks, Sudbury, Ont., Canada*

• Many of Mr. Jefferies' drawings will appear in the forthcoming 1955-1956 "Air Progress."

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Graduates in Demand

• B.S. degree speed-up training in Engineering — Aeronautical, Chemical, Civil, Electrical, Mechanical and Electronics (inc. Radio & TV). Frequent trips to outstanding industrial plants. Modern lab facilities.

Earn part or all of your expenses in this large industrial center. Low tuition.

If you are called into service, while still a student, you will be prepared for a specialized military job, AND can return to school without losing credits. Approved for veterans. Enter September, December, March, June. Send for free catalog.

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## THE ROOKIE TRAINER

SENSATIONAL CONTROL MODEL



Send 10c for Comet's New 1955 Catalog

• Kit T-6

Fun for the beginner—thrills for the expert! SHAPED fuselage parts, wing, stabilizer and rudder; motor mount shaped and drilled; landing gear, wheels, etc. Suitable for Class "B" or "C" engines. 35½" span

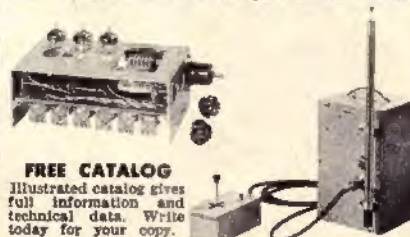
**\$3.50**

**COMET MODEL HOBBYCRAFT, INC.**

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## NEW RADIO CONTROL

• Designed for model planes and boats. New six-reed, multi-channel control handles rudder, elevator, and engine speeds. Nothing like it on the market! Complete unit or component parts—transmitter, control box and receiver. Sound engineering. Precision workmanship. Complete satisfaction guaranteed. Write.



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of Medieval times—authentic replicas of famous ancient weapons. Collector's items. Actually work—range 20 to 30 feet—over 30 parts.  
**KIT INCLUDES:**—cast gears and tripper, die-cut parts, brass pins, copper foil braces, all brass construction, all parts out to size. History of weapons included with each full size plan. Kits are approx. 12"x5½"x3½".



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For Radio Control — Free-Flight — PAA-Load

## "PIPER CUB J-3"

For .15 to .25 Engines—71" Span—2" Scale

Weight: 4 1/2 lbs. — 700 Sq. in. Wing Area — 14.2 oz. Loading

The "Piper Cub J-3" needs no introduction. Most famous of all light aircraft, it's a natural for R.C. or Free-Flight flying. The six foot span permits the extra R.C. installation that you dream about. This is a rugged, detailed, flight proven design. Full-Size Plan with R.C. installations, Authentic Decals, etc.

**\$8.95**



## CESSNA "170"

For Radio Control — Free-Flight — PAA-Load  
For .25 to .35 Engines—72" Span—2" Scale

Controlling your "Cessna 170" by Radio is a thrill you will not forget! Perfect in scale, rugged, stable in all attitudes, yet responsive in control, with good wind penetration qualities. The gear location is ideal for extended take-off runs. The larger than average size makes it easier to control in windy weather.

**\$10.95**



Radio Control — Free-Flight — Control Line

## Piper "TRI-PACER"

**\$5.95**

This perfect scale R.C. design may be built as a Free-Flight or Control Line version if desired. Full Size Plans cover special details for all three versions. Flaps, elevator, rudder, motor and nose gear may be operated by R.C. Ailerons for trim, cabin door access to Radio. Highly Pre-fabricated, Authentic Decals.

1 1/4" — 1' Scale—44" Wingspan

.065 to .099 Engines—Radio Control

.035 to .075 Engines—Free-Flight

.075 to .15 Engines—Control Line



• Formed Metal Ring Cowl

## De Havilland "BEAVER"

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This high aspect-ratio Canadian Bush Flying type aircraft now is in use by the U.S. Air Force. As a scale design, it is well proportioned and capable of contest performance. In R.C. and Control Line flying, its long moment arm make it ideal for spot landings with motor control. Metal Cowl, Full Size Plans, etc.

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.049 to .075 Engines—Radio Control

.035 to .075 Engines—Free-Flight

.074 to .15 Engines—Control Line



## GENERAL MOTORS "FIREBIRD"

SCALE OPERATING PLASTIC CAR KIT

Supersonic Scale Speed with safe CO<sub>2</sub> Power

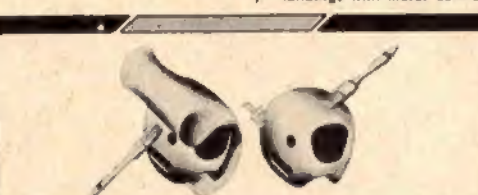
Assemble this scale turbojet experimental car in a matter of minutes. CO<sub>2</sub> capsule propels it at a super-sonic scale speed.

Complete Unit Including:

- Jet Starter Gun
- CO<sub>2</sub> Cartridges
- Plastic Cement

Car Kit **89c**

Only **\$1.49**



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1 Sq. Yard — **\$1.25**

## "FYB-RES"

8 Oz. Resin and Hardener

**\$1.95**

"Fyb-Res" applied to "Fibreglas" cloth makes an armor-like incredibly strong finish for wood surfaces. As easy to use as tissue and dope, yet stronger than steel. Hot fuel proof!



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• Reliable • Powerful • Easy to Install

Far superior to any other electric motor. Available in Direct Drive, and in four ratios of reduction drive. Suitable for Boats, Cars, Radio Control Servos, Model Railroad Accessories, etc. Will run well on only one pencil (1 1/2 volts) if desired.

• Alnico Magnet  
3 to 6 Volt Operation

- Direct Drive \$1.65
- 10-1 Reduction 2.00
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# 27 mc. "SUPER AEROTROL" and Radio Control Accessories!

Combination "Super Aerotrol" TRANSMITTER-RECEIVER Kit (less tubes).....	\$29.95
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72 Page Book on "RADIO CONTROL for Model Aircraft and Boats".....	1.00



NEW RADIO  
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Kits may be assembled in less than two hours. No radio experience necessary. Step-by-step plans, color coded wiring. Just solder and screw together. Chassis and all electrical components are included.



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RECEIVER 2 1/2 oz.

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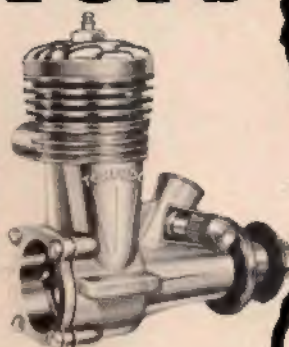


# ONLY THE BEST IS **TOPS**

## TORPEDO .15

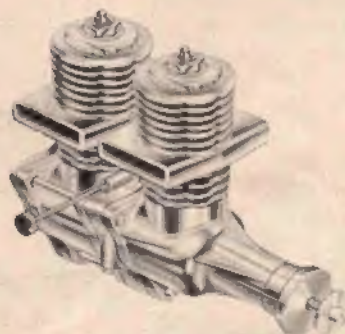
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Power your new PAA-Load plane with the world's champion Torpedo .15. This is the engine that specifically qualifies for the new PAA-Load rules as outlined by PAA. It also qualifies for FAI rules and has won the World's Power Championship two years running—in England in 1953 and in New York in 1954. Surely it is tops!



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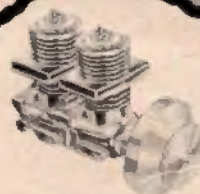
**.099 - \$9.95 .15 - \$11.95**

Here is the ultimate in twin engines at a price within reach of all. Both are built with the same rugged construction and mechanical fitness of the famous Sky Fury .049. The Sky Fury TWINS streamlines your plane, too, offering less frontal area than a single engine of comparable size.



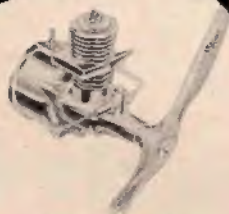
### Torpedo 2 Speed

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.12 - \$14.95 .15 - \$16.95  
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Sea Fury Inboard Single  
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	½ Pints	Pints
Supersonic "100"	\$ .50	\$ .80
Supersonic Ultra Glo	.55	.90
Supersonic "1000"	.60	1.00

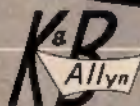
Supersonic "100" only, also available  
in qts.—\$1.45, ½ gals.—\$2.75, gals.—\$4.90



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Outboard - \$4.95  
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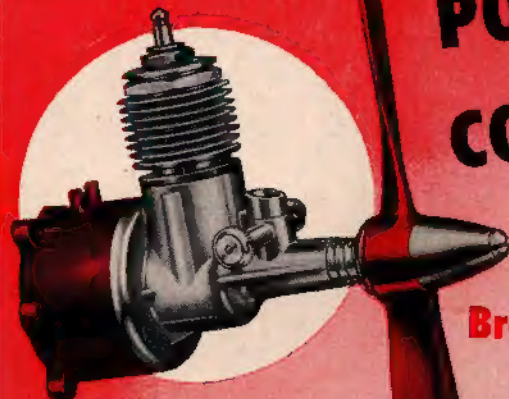
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... special for control line flying. Lightweight, oversize fuel tank gives you winning range and power, plus greater output on a power/weight ratio. Mounts flush on the face of your plane. Comes complete with prop, spinner and super-capacity fuel tank.

**\$4.95**

**OK CUB  
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Here's a flashy performer with plenty of power for general flying. Has both radial and lug mountings. It's versatile, comes already assembled. Complete with fuel tank, prop and spinner.

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**KNOW** your engine... assemble it yourself! Learn your engine from the inside out... and save \$1.00! Includes all the parts and complete instruction for assembling the Cub. 049B.

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"OK" GLOW FUEL  
"OK" DIESEL FUEL  
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Short or long —  
59¢



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"OK" CUB .074  
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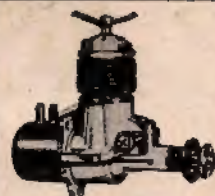
"OK" CUB .099  
\$6.95



"OK" CUB .14 \$7.95  
"OK" CUB .19 \$8.95



"OK" HOTHEAD  
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"OK" CUB DIESELS  
.049 \$5.95  
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